



THE GENUS  
GALACTIA IN THE  
UNITED STATES

—————

HOLLIS J. ROGERS

DUKE  
UNIVERSITY



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tigation.

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Acknowledgment is made of the courtesies extended by  
the curators of the herbaria in securing material, in  
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## ACKNOWLEDGEMENTS

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To each of the other members of the staff of the Botany Department of Duke University, the writer is indebted for the sincere spirit of cooperation and for the constant interest and encouragement which they have shown throughout the work. Dr. H. J. Oosting has been especially helpful in securing material from the various herbariums.

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H. J. R.

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## THE GENUS GALACTIA IN THE UNITED STATES



## INTRODUCTION

This paper is intended as a taxonomic study of the species of Galactia in the United States, with a view to revising the nomenclature, clarifying the specific concepts, and establishing the distribution of the species. No attempt is made at establishing the natural relationships within the group since only 20 of the 150 species of the genus are involved in this study. The key is largely artificial and designed primarily to facilitate identification of specimens as they are found in the field or herbarium.

The problem existing in the Genus Galactia was first brought to the attention of the writer in 1940 when he was preparing a taxonomic paper, The Flora of McCreary County, Kentucky, (1941). Only one species was involved in this paper, but due to the confusion existing in the literature and the herbarium material he was unable to decide with any degree of satisfaction as to whether this species should be called G. regularis (L.) BSP., G. volubilis (L.) Britton, G. volubilis var. mississippiensis Vail,



or G. mississippiensis (Vail) Rydb. This same problem, but complicated by the addition of other species and additional growth forms, was met with at Beaufort, North Carolina during the summer of 1942. Again no really satisfactory determinations could be made.

A detailed study of the available literature and of the material in the Duke University Herbarium was followed by a collecting trip through the coastal plain and coastal regions of North and South Carolina in the early summer of 1946. Later that summer one month was spent at Beaufort, North Carolina, where the writer was able to study at first hand those forms growing on the coast and the outer banks. During this summer more than one hundred herbarium sheets of Galactia were collected, many more plants examined in the field, and several bottles of flowers and fruits preserved for later study. Seeds were collected during the later part of the season to be grown under observation in the greenhouses at Duke University during the following year.

A trip during August and September, 1946 through North Carolina, Virginia, Tennessee, and Kentucky failed to provide much important material; but a journey over the same route the following June provided twenty growing plants, including some from the mountain pass at Cumberland Gap, Virginia, some from sandy woodland in McCreary County, Kentucky, others from the limestone region of Warren and Logan Counties, Kentucky, and others from the bank of the Tennessee River in Marshall and Trigg Counties, Kentucky. These plants were grown in the greenhouses at Duke



University along with plants secured by Mr. Louis G. Williams in the vicinity of Beaufort, North Carolina, the seedlings from the seeds collected during 1946, and several plants obtained in and around Durham, North Carolina. This provided an opportunity to study the plants collectively and under controlled and similar environmental conditions. The results of these studies will be discussed under the various species.

Several attempts were made at counting and mapping the chromosomes of some of the species in reduction division at microspore formation, but since slides were never secured from which accurate counts could be made, this project was abandoned. The writer can only suggest to future workers on this genus that meiosis occurs in a very early stage in flower formation. Mature pollen grains were found, even in relatively small and apparently immature flower buds.

The continued work in this investigation was made possible by the following institutions through their kindness in lending herbarium material, providing photographic negatives of the type specimen in several cases, and by lending rare books and periodicals which would normally be unavailable: The New York Botanical Garden, the United States National Herbarium, the Missouri Botanical Garden, the Gray Herbarium, the Royal Botanic Gardens at Kew, the British Museum of Natural History, the National Herbarium at Paris, the Philadelphia Academy of Natural Science, the University of Florida, the University of Kentucky, the University of North Carolina, and the State College of the University of North Carolina.



The following abbreviations will be used when specimens from these herbariums are referred to in the text:

- D - Duke University, Durham, North Carolina
- F - Experiment Station, University of Florida, Gainesville, Florida
- G - Gray Herbarium, Harvard University, Cambridge, Massachusetts
- K - University of Kentucky, Lexington, Kentucky
- M - Missouri Botanical Garden, St. Louis, Missouri
- NC - University of North Carolina, Chapel Hill, North Carolina
- NY - New York Botanical Garden, New York City
- SC - State College, University of North Carolina, Raleigh, North Carolina
- US - United States National Herbarium, Washington.



## HISTORY OF THE GENUS

Linnaeus listed two species of what is now known as Galactia in his Species Plantarum, 1753, but failed to recognize their relationship and placed one under the Genus Hedysarum, as H. volubile L. Sp. Pl. 750. 1753 and the other under Dolichos as D. regularis L. Sp. Pl. 726. 1753. It was three years later when Patrick Browne, Nat. Hist. Jamaica, 289, pl. 32, f. 2. 1756, established the Genus Galactia. Browne described the genus rather briefly and referred to the plate by G. D. Ehret, of which a reproduction is included as Plate I, page 11. He then gave a very exact description of the single species involved, but failed to give it a specific name, referring to it by number as he treated all other genera. Browne placed Clitoria 1 and Clitoria 2 immediately preceding his Genus Galactia in the text. Linnaeus included Browne's Galactia under this closely related genus and called it Clitoria Galactia Sp. Pl. Ed. 2. 1026. 1763. Michaux, Fl. Bor. Amer. 2: 61. 1803, revived the genus and credited it to Browne. He described two species, G. mollis



Michx., which is still valid, and G. glabella Michx., which is now considered to be a synonym of Dolichos regularis L. Persoon first gave an acceptable binomial to the Galactia 1 of Browne when he called it Galactia pendula Pers. Syn. 2: 302. 1807. Thus the type species of the genus must be considered as Galactia pendula Persoon.

At various times since the establishment of the genus some of the species have been placed erroneously under the following genera: Clitoria; Cologania; Ervum; Galega; Glycine; Elycine; Hedysarum; Lablab; Tephrosia.



GALACTIA BROWNE

Nat. Hist. Jamaica, 298. 1765

## Synonymy:

Odonia Bertol. Lucub. Herb. 35. 1822Sweetia DC. Mem. Leg. 358. 1823Collaea DC. Ann. Sci. Nat. (L.) 4: 96. 1825Betencourtia St. Hil. Voy. 1: 376. 1833Leucodictyon Dalz in Hook. Kew Jour. Bot. 2: 264.  
1850Heterocarpaea Scheele, Linnaea, 21: 467. 1848.

Calyx campanulate, 4-toothed; the sepals elongate and pointed, the frequently 2-toothed upper lobe longer and broader than the lateral ones, the lower lobe the longest: corolla of five pink, purple, red, or white petals; standard ovate to ob-ovate or oval, rounded, pointed or notched at the apex, tapered more or less abruptly at the base, with or without auricles; wings relatively narrow, shorter than the standard, with or without appendages; keel petals fused at the apex, resembling



the wings when separated: stamens ten, diadelphous: ovary sessile or shortly stalked, ovules numerous in aerial flowers: legume straight, slightly curved or falcate; convex or flattened; occasional subterranean fruits one-seeded: flowers bi-bracteolate: inflorescence axillary: leaves simple, ternate, palmately 5-foliolate, or 5 - 9 pinnately compound: stipules small, inconspicuous, and early deciduous: stems erect, decumbent, prostrate, or twining; herbaceous or woody: roots perennial.

Section 1. Eugalactia Taub. Flowers small, petals narrow, ovary stalked. All North American species seem to fall into this section proposed by Taubert in Engler and Prantl, Die Nat. Pflanzenf. 3: part 3, 368. 1894.

Section 2. Collaea DC. Flowers medium to large, petals broader, ovary subsessile. The more primitive, woody, and showy flowered species of the American tropics belong to this section. Some examples of species falling into this section are: G. speciosa (DC.) Britton, G. macrophylla (Benth.) Taubert, and G. crassifolia (Benth.) Taubert. None of the members of this section extends into North America.

Type species: Galactia pendula Pers. Syn. 2: 302. 1807.

Synonymy:

Galactia 1 P. Browne, Nat. Hist. Jamaica, 298. 1756.

Clitoria Galactia (Browne) L. Sp. Pl. Ed. 2, 1926.

1763.

Type specimen: Plate by G. D. Ehret, Nat. Hist. Jamaica, Tab. 32. f. 2. 1756. Plate I, page 11.



The Genus Galactia, with approximately 150 described species, is widely distributed throughout most of the tropical and temperate regions of the world. While more than one-half of the species are found in South America and the West Indies, Galactia has also been reported from Africa, Australia, the East Indies, Indo-China, China, and Formosa in addition to those species found in Central America, Mexico, and the United States.

The occurrence of more than eighty of the known species within the relatively limited area of northern South America and the West Indies indicates that this may have been the center of origin of the species. Other facts which point to this conclusion are that the larger flowered, woody stemmed, and more primitive members of the genus such as G. speciosa (DC) Britton and such smaller flowered, herbaceous, and perhaps more recently evolved species like G. parvifolia A. Rich. are both found within this limited area. The most northerly extension of the genus is directly north of this area into the eastern part of the United States, and the most southerly extension is directly south into Chile and Argentina. The islands of the West Indies alone have more than fifty of the known 150 species of the genus, and many of these are known from only a single island or similar restricted location within the area.

Another factor pointed to the above conclusion as to the center of origin of the species is the complete absence of Galactia from Europe, the Mediterranean Region, the British Isles, and even from the Pacific Coast of the United States.





Plate I.

Photo Type of Galactia Browne. G. D. Ehret, Nat. Hist. Jamaica,  
Tab. 32. f. 2. 1756.





### THE GALACTIAS OF THE UNITED STATES

The species of Galactia may be distinguished from other similar genera by the four almost equal lobes of the calyx and the absence of stipules from all but the very youngest stems. These two characters will eliminate most of the confusion in recognition of this genus. Both the stems and leaves are quite variable <sup>among</sup> ~~between~~ the species of the genus, and are of great importance in identification. The amount, character, and length of the pubescence must be considered, but in most cases it is so variable under different ecological conditions as to make it almost worthless in identification unless the habitat of the plant is known.

The inflorescence is of great taxonomic value and should be considered from the standpoint of the relative lengths of the peduncles and rachises, strength and growth habit of the central axis, and the orientation of the flowers. Flower color is quite distinctive for G. mollis and G. elliottii, but of little or no value in the other species. The shape and mode of



branching of the root system is quite distinctive for each species, and more attention should be given to collecting these organs in making specimens for the herbarium.

Twenty species in the United States ranging southward from Long Island, southern Indiana, Missouri, Kansas and Arizona.

Key to the species of Galactia in the United States

1. Leaves simple; flowers solitary, sometimes 2 - 3 . . . . .  
 . . . . . 1. G. marginalis
1. Leaves compound; flowers racemose or paniculate
  2. Leaves mostly trifoliate
    3. Accessory leaflets often attached to the lateral pair,  
 always some 5-foliolate leaves . . 2. G. heterophylla
    3. Accessory leaflets absent, strictly 3-foliolate.
  4. Stem erect or decumbent, flexuose.
    5. Terminal leaflet sessile, panicle sessile or sub-  
 sessile . . . . . 3. G. erecta
    5. Terminal leaflet petiolulate, panicle pedunculate  
 . . . . . 4. G. brachypoda
  4. Stem prostrate or twining, not flexuose.
    6. Stem prostrate, never twining.
      7. Petioles usually less than 1 cm. long; flowers  
 2 - 3 per panicle . . . . . 5. G. microphylla
      7. Petioles usually greater than 2 cm. long; flow-  
 ers 5 or more per panicle.
    8. Calyx over 10 mm. long, leaflets linear . . .  
 . . . . . 5. G. pinetorum



8. Calyx under 9 mm. long, leaflets oblong to oval or elliptic.
9. Plants essentially glabrous . . . . . 14. G. regularis
9. Plants distinctly pubescent.
10. Leaflets oblong, plants of Southwest . . . . .  
. . . . . 16. G. wrightii
10. Leaflets oval to elliptic, plants of Southeast.
11. Leaflets about 1 cm. wide, finely pubescent . . .  
. . . . . 7. G. smallii
11. Leaflets over 2 cm. wide, hoary pubescent . . . .  
. . . . . 8. G. floridana
6. Stem twining
12. Panicles flexuose, 2 - 7 in axils of leaves . . . . .
13. Panicles branched; no subterranean pods, plants of  
Florida . . . . . 9. G. fasciculata
13. Panicles simple; subterranean pods present, plants of  
Texas . . . . . 10. G. canescens
12. Panicles straight, solitary or with reduced accessory ones
14. Leaflets oval to ovate.
15. Leaflets over 2 cm. wide, deeply emarginate, thin .  
. . . . . 11. G. texana
15. Leaflets less than 2 cm. wide, scarcely emarginate,  
thick.
16. Panicle much exceeding the leaves, pedicel much  
longer than the rachis, flowers clustered . . .  
. . . . . 12. G. mollis
16. Panicle shorter or slightly longer than the



leaves, pedicel shorter than the rachis, flowers scattered

. . . . . 13. G. mississippiensis

14. Leaflets oblong to oblong linear.

17. Mature fruit less than 5 mm. wide, stems not woody.

18. Stem essentially prostrate, some branches twining,  
calyx slightly pubescent along veins . . . . .

. . . . . 14. G. regularis

18. Stem climbing, all branches twining; calyx densely  
pubescent.

19. Leaflets oblong-ovate; pedicel slightly exceeding  
the rachis . . . . . 15. G. volubilis

19. Leaflets oblong-linear; panicle flowering through-  
out.

20. Stem cinereous pubescent . . . . .  
. . . . . 16. G. wrightii

20. Stem retrorsely pubescent.

21. Petiole less than 1 cm. long; leaflets five  
times as long as wide . . . . .  
. . . . . 17. G. longifolia

21. Petiole 1 - 3 cm. long; leaflets three times  
as long as wide . . . 15. G. volubilis

17. Mature fruit more than 6 mm. wide; stem woody.

22. Panicle almost sessile; leaves coriaceous . . . . .  
. . . . . 18. G. spiciformis

22. Panicle long pediceled; leaves membranous . . . . .  
. . . . . 19. G. striata

2. Leaves not trifoliolate, 5 - 9 leaflets.

23. Palmately compound; accessory leaflets attached to the



- lateral pair; flowers purple . . . . . 2. G. heterophylla
23. Pinnately compound; 5 - 9 leaflets; flowers white . . . . .
- . . . . . 20. G. elliotii



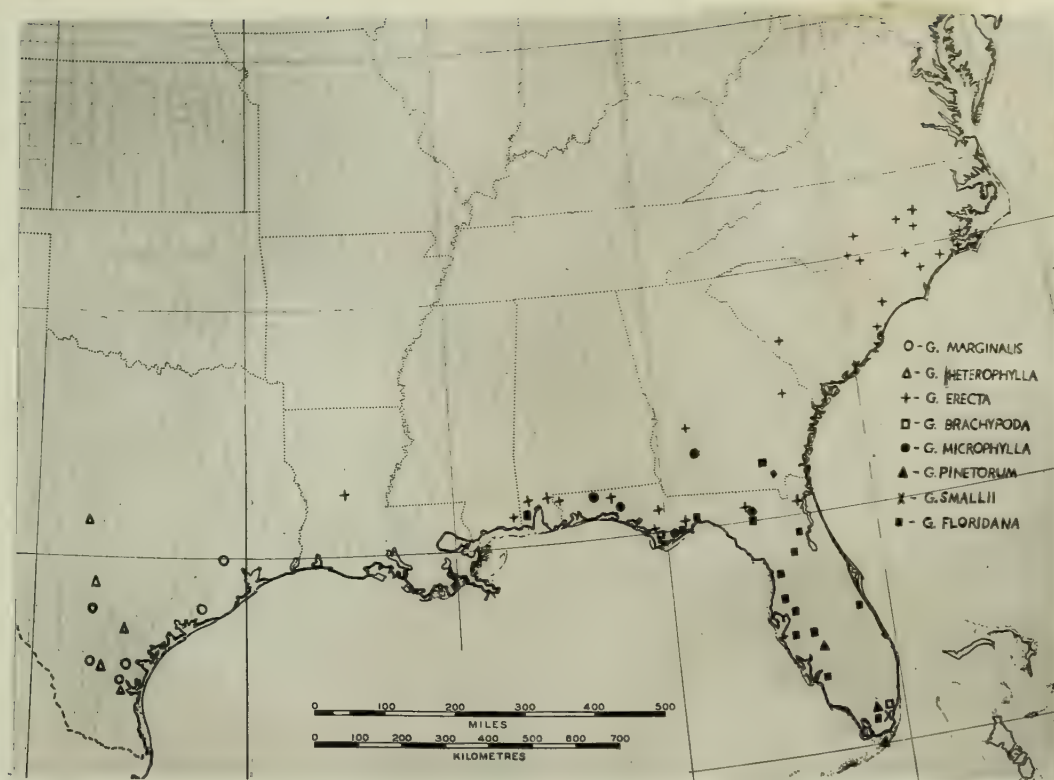


Plate II.

Map I. Range of the species shown in legend.



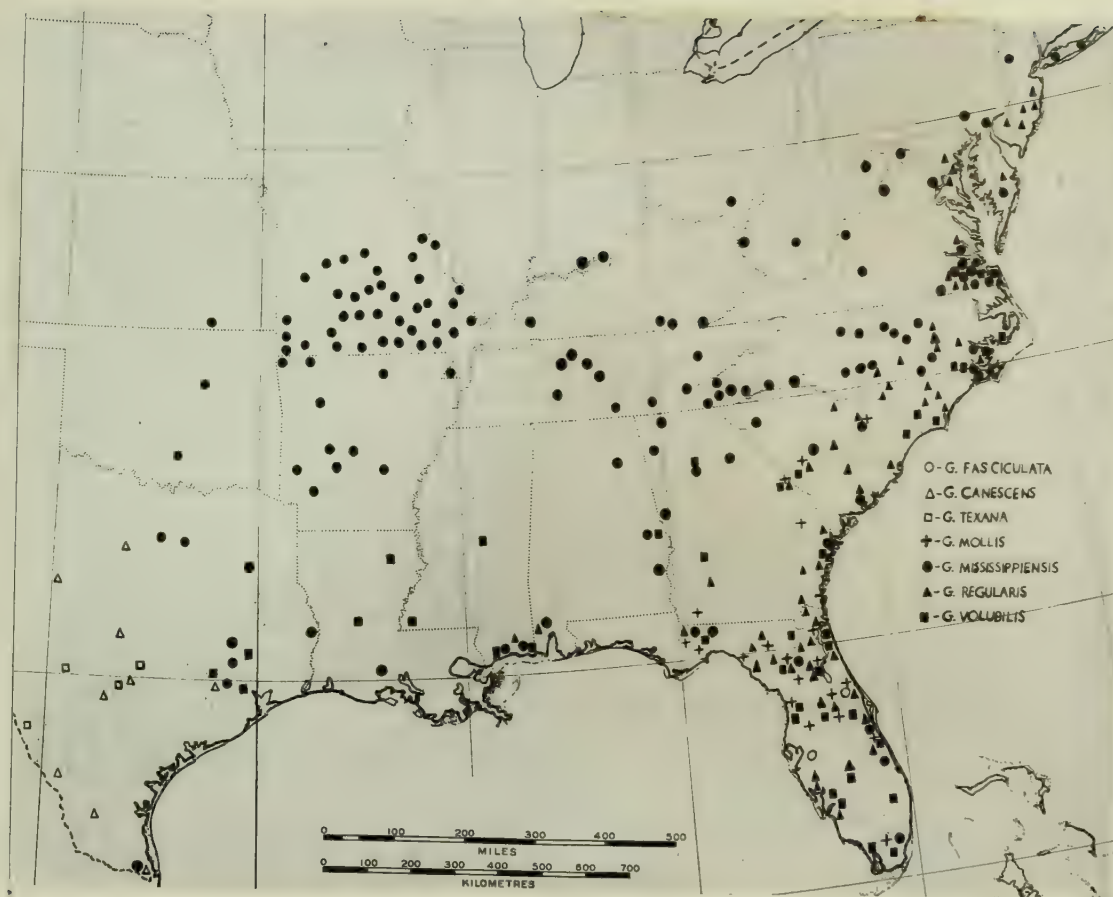


Plate III.

Map II. Range of the species shown in legend.



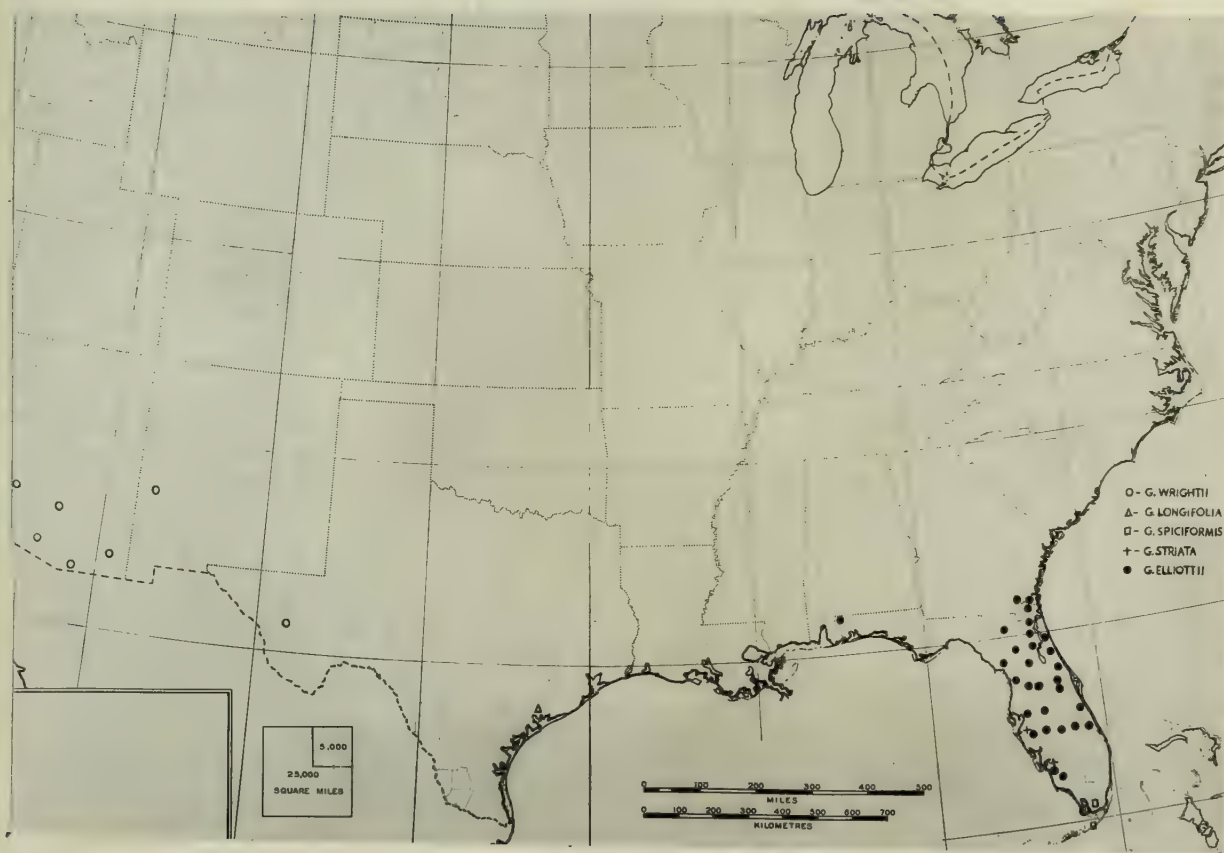


Plate IV.

Map III. Range of the species shown in legend.



## SYSTEMATIC TREATMENT OF THE SPECIES

1. Galactia marginalis Benth. Ann. Wien. Mus. 2: 126. 1838.

## Synonymy:

Cologania? heterophylla Gill. ex Hook. & Arnott, Hooker  
Bot. Misc. 3: 181. 1833.

Galactia heterophylla (Gill.) Vail, Bull. Torr. Bot. Club  
22: 503. 1895. Not G. heterophylla A. Gray, 1850.

Type specimen: Karwinsky from Mexico as type and Drummond from Texas, 1835 as co-type. These specimens should be in the Kew Herbarium, but confirmation is lacking. None of the type material has been seen in this work, but the description of Bentham excludes any other species.

Plate V, page 22.

Stem slender, unbranched above the base, procumbent, flexuose, faintly hirsute to glabrate: leaves simple, 1 - 3 cm. long, oblong lanceolate to linear, coriaceous, glabrous above, minutely strigose beneath; veins confluent in the margins to form a marginal nerve: root woody, fusiform: flowers



solitary or sometimes 2 - 3 in axils of the leaves, 12 - 16 mm. long; calyx 6 - 9 mm. long, broadly campanulate, strigose; corolla red; standard 12 - 14 mm. long, notched at the apex, faintly auricled at the base, almost as broad as long: legume 2.5 - 3.5 cm. long, 4 - 5 mm. wide, hirsute.

Near the Gulf Coast of Texas and in Central America, Uruguay and Argentina. Plate No. II, page 17.

This being the only simple leaved form within our range, the species is very easy to recognize, but it is not typical of the genus. Many sheets may exist in herbaria in the unclassified section or under other genera of the family. Several other simple leaved forms are found in Central and South America.

TEXAS: Palmer 2921, Pleasanton, Atascosa County, October 3, 1917. (M.); Croft 27, San Diego, Duval County, 1894. (NY.); Hall 111, Houston, Harris County, June 16, 1872. (M.); Palmer 9669, Bay City, Matagorda County, May 16, 1782. (M.); Tracy 9063, Kingsville, Kleberg County, June 14, 1906. (NY., M.); Eaton s.n., Corpus Christi, Nueces County, 1845. (NY.); Parry s.n., Rio Grande Valley, Mexican Boundary Survey (NY.) and Rio Blanco (NY.).





Plate V. Galactia marginalis Benth.



2. Galactia heterophylla A. Gray, Bost. Jour. Nat. Hist. 6: 171. 1850.

Synonymy:

Galactia grayii Vail, Bull. Torr. Bot. Club 22: 503. 1895.

Type specimen: Lindheimer No. 591. New York Botanical Garden Herbarium. On Llano River, Texas, October, 1847.

Plate VI, page 25. Type.

Stem fairly slender, decumbent, branched; pubescence retrorsely strigillose: leaves 3 - 4 or 5 foliolate; silky canescent; thickish; the terminal leaflet petioluled; accessory leaflets, when present, affixed to the subsessile lateral pair: root thick and woody: peduncles 1 - 3 cm. long; rachis 1 - 4 flowered: flowers 15 - 20 mm. long; calyx 9 - 12 mm. long, pubescent; corolla reported by A. Gray to have the standard yellow and the other petals rose colored; standard rounded at the apex, tapered at the base: legume 4 - 6 cm. long, 5 mm. wide; pubescent.

Near the Gulf Coast and northward through central Texas. Plate II, page 17.

This silky canescent Texas species can be easily recognized by the presence of the uniquely five-parted leaves on every plant. All of the leaves are not of this five leaflet type, but there is always enough of them on each plant to make identification of the species by this character quite definite.

TEXAS: Tharp s.n., Petters, Bee County, June 27, 1941.



(M.); Parks 1503, Bexar County, September, 1940. (M.); Croft 22, San Diego, Duval County, 1884. (NY.); Tracy 9076, Kingsville, Kleberg County, April 2, 1905. (M.,NY.); Reverchon s.n., Llamo County, May, 1885. (M.); Reverchon s.n., August 16, 1877. (NY.); Nealley 315, - 316, Pena, 1889. (NY.); and Lindheimer 591, s.d., (M.,NY.) Type.





Plate VI. Galactia heterophylla A. Gray.

Type specimen



3. Galactia erecta (Walt.) Vail. Bull. Torr. Bot. Club. 22: 500. 1895.

Synonymy:

Ervum erectum Walt. Fl. Car. 187. 1788.

Galactia sessiliflora T. & G. Fl. N. Am. 1: 288. 1838.

Type specimen: Since Walters' Ervum erectum has not been located, Galactia erecta (Walt.) Vail, A. H. Curtiss 6651, Dry pine barrens, Live Oak, Suwannee County, Florida, June 7, 1900, is being proposed as a lectotype. This specimen is in the New York Botanical Garden Herbarium. Duplicate sheets have been examined from Missouri and Gray Herbariums.

Plate VII, page 29.

Stem slender, flexuose, erect or decumbent, 15 - 30 cm. tall; glabrous: leaflets elliptic, oblong linear to linear; glabrous; the terminal subsessile; 2.5 - 4 cm. long; root slender, fusiform, woody; usually with a crown of old stem bases at the apex: peduncles and rachesis extremely shortened with 1 - 6 flowers in subsessile axillary clusters: flowers 8 - 10 mm. long; calyx 5 - 6 mm. long, densely pilose; corolla pale purple to white; standard 7 - 8 mm. long, deeply notched at the apex, tapered to a relatively long claw at the base; almost as wide as long: legume 2 - 4 cm. long, 6 - 10 seeded, plump, densely pubescent.

Grassy knolls in mixed coastal plain forest, North Carolina, Florida and west to Louisiana. Plate II, page 17.

This species is easily recognized since no other of our



Galactias have a subsessile terminal leaflet. The small plants are extremely hard to locate in the field since they usually exceed the grass through which they grow by only a few inches.

Glycine stricta Hook. and Arnott. Hook. Comp. Mag. 1: 22. 1835., is not listed in the synonymy above because that plant is credited in the original description as having, "Calyx hairy, bibracteate, cut halfway down into five nearly equal, subulate, hairy segments, rather more than half the length of the corolla." Since no Galactia has five calyx segments, it has been excluded from the synonymy.

ALABAMA: Shallert 1371, Magnolia Springs, Baldwin County, July 12, 1909. (D.); Bush 300, Spring Hill, Mobile County, August, 1918. (M.); Gates s.n., s.d., (NY.); Mohr s.n., June, 1879.

FLORIDA: No information other than Calhoun County. (M.); Fredholm 5206, Duval County, May 13, 1902. (G.); Tisdale, s.n., Bluff Springs, Escambia County, May 2, 1933. (F.); Chapman Herbarium 3956b, Wewahitchka, Gulf County, August 1896. (M., NY., G.) Note: One plant of the Missouri sheet is G. brachypoda T. & G.; Curtiss 6651, Live Oak, Suwannee County, June 7, 1900. (G., M., NY.); Rugel 150, St. Marks, Wakula County, June 1845. (NY.); Hume s.n., Walton County, June 7, 1888. (F.); Curtiss 680, Walton County, June, (NY.); A. H. Curtis 6487, Argyle, Walton County, July 21, 1899. (T., M., NY.); Curtiss s.n., Walton County, July 21, 1899. (M., NY.); Tracy 9062, DeFuniak Springs,



Walton County, May 19, 1906. (G.,M.,NY.); Chapman, only state given, (NY.,G.); Rugel s.n., June 1843. (NY.).

GEORGIA: Harper s.n., Pine barren, Bullock County, June 7, 1901. (M.,NY.); Harper s.n., Pine barrens, Sumter County, July 20, 1897. (NY.); Cleveland 1860. (F.).

LOUISIANA: Hale s.n., Alexandria, Rapides Parish. (NY.); Drummond 1832, Ex Herbarium Shuttleworth. (NY.).

MISSISSIPPI: Tracy 4848, Ocean Springs, Jackson County, June 21, 1898. (M.,NY.).

NORTH CAROLINA: Rogers 3431, Newport, Carteret County, July 12, 1946. (D.); Rogers 3153, Newport, Carteret County, June 24, 1946. (D.); Godfrey 4422, Havelock, Craven County, June 10, 1938. (G.,SC.); Rogers 3116, Smithfield, Johnston County, June 8, 1946. (D.); Rodgers 165, Crystal Lake, Moore County, June 12, 1940. (D.); Godfrey 4470, Savannah near Richlands, Onslow County, June 10, 1938. (G.); Curtis s.n., Moore County, 1865. (G.); Blankenship s.n., Southern Pines, Moore County, July 18, 1895. (G.); Wiegand and Manning 1660, Pine Bluff, Moore County, July 1, 1927. (G.); Rogers 3467, Arrapahoe, Pamlico County, July 14, 1946. (D.); Wells s.n., Burgass, Pender County, July 23, 1945. (SC.); Biltmore Herbarium 3956a, Hamlet, Richmond County, June 17, 1897. (G.,NY.); Wiegand and Manning 1661, East of Hamlet, Richmond County, July 2, 1927. (G.); Rogers 3121, Clinton, Sampson County, July 10, 1946.(D.); Godfrey 4582, Laurinburg, Scotland County, June 11, 1938. (G.,D.); Godfrey 4235, Newton Grove, Wayne County, June 7, 1938. (G.,D.); Wiegand and Manning 1659, Sims, Wilson County, June 25, 1927. (G.).



SOUTH CAROLINA: Ravenel s.n., Aiken, Aiken County, September 1. (M.,NY.); Drushel 9951, Cawcaw Swamp, Horry County, May 30, 1935. (NY.); Godfrey 147, Andrews, Georgetown County, September 10, 1939. (D.,G.,M.,NY.); Curtiss s.n., without date or location. (G.,NY.).





Plate VII. Galactia erecta (Walt.) Vail.



4. Galactia brachypoda T. & G. Fl. N. Am. 1: 288. 1838.

Type specimen: Chapman s.n., s.d., in New York Botanical Garden Herbarium, from dry pine barrens, Middle Florida.

Plate VIII, page 32. Type.

Stem slender, flexuose, erect or decumbent; 20 - 45 cm. tall; slightly puberulous: leaflets elliptic to oblong linear; glabrous or minutely appressed pubescent above, slightly strigose below; the terminal leaflet arising about 6 mm. beyond the lateral pair: peduncle 1 - 5 cm. long; the rachis usually about 3 cm. long with 4 - 6 flowers; flowers 8 - 10 mm. long; calyx 5 - 6 mm. long, pilose; corolla 8 - 9 mm. long, purplish; standard round-ovate, slightly indented at the apex; legume flat, straight, tomentose.

Dry pine barrens of Middle Florida. Map. Plate II, page 17.

This plant resembles G. erecta (Walt.) Vail so much that its identity is often overlooked. This error is unnecessary if one will but examine the terminal leaflet of all plants of this habit. The stalked terminal leaflet, along with the elongation of the inflorescence, an accompanying increase of pubescence, and the slightly larger plants represent the recognized differences between these two species. Since only five sheets of this species were found in the herbariums examined, and four of these were collected by Dr. Chapman, it is highly desirable that a study of this species be made in Central Florida.

FLORIDA: Hood s.n., Miami, Dade County, August 14, 1912.

(F.); Chapman s.n., Wewahitchka, Gulf County, 1897.(M.) in part; Chapman Herbarium s.n., (NY.); Chapman s.n., (M.); Chapman s.n., dry pine barrens, (NY.) Type.





Plate VIII. Galactia brachypoda T. & G.

Type specimen



5. Galactia microphylla (Chapman) comb. nov.

Synonymy:

Galactia floridana T. & G. var. microphylla Chapman, Fl.  
So. States. 108. 1884.

Type specimen: Chapman, Herb. Chapman, Florida. Unnumbered and  
undated specimen, New York Botanical Garden.

Plate No. IX, page 35. Type.

Stem fairly stout, procumbent, straight, unbranched above  
the base, closely pubescent: leaves short petioled, averaging  
less than 1 cm.; leaflets 12 - 16 mm. long, obovate and retuse  
to elliptic and pointed, closely and densely pubescent: inflo-  
rescence very short and usually reduced to a single flower:  
flowers 15 - 17 mm. long; calyx 9 - 10 mm. long: corolla pale  
purple, rounded above, tapered to a flat claw at the base:  
mature legumes not seen.

Northern Florida and Southern Georgia. Plate No. II, page  
17.

This form is elevated to specific rank because it differs  
from G. floridana T. & G. in that the flowers are larger, the  
inflorescence reduced, the stems strict and straighter, the  
leaves reduced and short petioled, the pubescence shorter and  
closer, the leaves much less coriaceous and with more obscure  
veins. It is entirely different from any other species of  
Galactia in the above characters and should, therefore, be given  
specific rank.

FLORIDA: Chapman s.n., Apalachicola, Franklin County. (M.);



Crevasse s.n., Destin, Okaloosa County, August 19, 1940. (F.);  
Curtiss s.n., DeFuniak Springs, Walton County, June 25, 1886.  
(G.,NY.); Tracy 6333, Santa Rosa Island, Walton County, August  
30, 1899. (M.,NY.); Brinker s.n., Santa Rosa Island, Walton  
County, August 4, 1941. (M.); West & Arnold s.n., Laurasville,  
Suwannee County, August 9, 1946. (F.).

GEORGIA: Tracy 3562, Albany, Daugherty County, July 20,  
1897. (NY.).





Plate IX. Galactia microphylla (Chapman) Rogers.

Type specimen.



6. Galactia pinetorum J. K. Small, Flora Miami 93 and 200. 1913.

Type specimen: J. K. Small and P. Wilson 1592 in New York Botanical Garden, Dade County, Pinelands between Coconut Grove and Cutler, Florida. May 9, 1904.

Plate X, page 38. Type.

Stem rather slender, much branched, procumbent, seldom twining, finely pubescent: leaflets 3 - 4 cm. long, to 8 mm. wide, linear-lanceolate or linear, usually widest at the base and gradually tapered to the blunt apex, coriaceous, minutely appressed pubescent: root large, elongate, woody: inflorescence to 10 cm. long, the peduncle usually exceeding the rachis; flowers 16 - 20 mm. long; calyx 12 - 15 mm. long; corolla pink to purple; standard pointed at the apex, abruptly tapered into the claw; legume 4.5 - 6 cm. long.

Pinelands and Hammocks of Southern Florida. Map. Plate II, page 17.

This distinct species is easily recognized by the coriaceous, almost linear leaflets which are consistently wider at the base, and by the relatively large flowers.

FLORIDA: Small and Wilson 1592, Dade County, May 9, 1904. (NY.). Type; Moldenke 268, Buena Vista, Dade County, December 18, 1929. (D.,M.,NY.); Moldenke 580a, Buena Vista, Dade County, February 8, 1930. (D.,M.,NY.); McAllister 60, Key Biscayne, Dade County, April 4, 1936. (D.); Moldenke 3599, Miami, Dade County, December 25, 1927. (NY.); Small, Mosier & Small 6571, Ross-Costello Hammock, Dade County, June 24, 1915. (NY.); Small and



Nash s.n., Coconut Grove, Dade County, November 2 - 5, 1901.  
(NY.); Small and Wilson, Coconut Grove, Dade County, 1904.  
(NY.); Small and Wilson 1590, Coconut Grove, Dade County, May  
9, 1904. (NY.); Small and Carter 746, Coconut Grove, Dade  
County, October 31 to November 4, 1903. (NY.); Small and Carter  
2533, Miami, Dade County, November 5, 1903. (NY.); Britton s.n.,  
Miami, Dade County, April 1, 1903. (NY.); Small, Mosier & Small  
6430, Dade County, June 23, 1915. (NY.); Britton 47, Pinelands  
South of Miami, Dade County, November 16, 1906. (NY.); McFarlin  
s.n., South Miami, Dade County, Spring 1942. (F.); Small and  
Carter 2561, Larkin, Dade County, November 16, 1906. (NY.);  
Small and DeWinkler 9530, Venus, DeSoto County, April 15, 1920.  
(NY.); Crevasse s.n., Key Largo, Monroe County, April 9, 1941.  
(F.); Small and Wilson 1724, Camp Longview, May 1904. (NY.).





Plate X. Galactia pinetorum J. K. Small.

Type specimen.



7. Galactia smallii nom. nov.

## Synonymy:

Galactia prostrata J. K. Small, Man. S. E. Flora 719 and 1505. 1933. Not G. prostrata Benth. Ann. Wien. Mus. 2: 127. 1838.

Type specimen: Small No. 8633 in New York Botanical Garden, Dade County, Florida, May 13, 1918, flower type. Cotype Small, Mosier and Small No. 6453 in New York Botanical Garden, Dade County, Florida, June 22, 1915, fruit type.

Plate XI, page 41, type. Plate XII, page 42, cotype.

Stem slender, prostrate, 3 - 4 feet long, branched, finely and densely pubescent to glabrate: leaflets oval, elliptic or obovate, coriaceous, minutely strigose pubescent, about 2 cm. long, 1 cm. wide; peduncle 6 - 8 cm. long, slightly exceeding the rachis: flowers 17 - 21 mm. long, pale purple; standard 16 - 20 mm. long, slightly notched at the apex, obscurely auricled at the base; calyx 8 - 9 mm. long: fruit 4 - 5 cm. long, straight.

Known only from Dade County, Florida. Map. Plate II, page 16.

This species may be recognized by the small, rather thickish leaves which tend to be oval, the prostrate, non-twining branches, and the rather large flowers.

Dade County, FLORIDA: Small 8633, Pinelands, Redlands District, May 13, 1918. Flower type. (NY., F.); Small, Mosier and Small 6453, Pinelands near Silver Palm, June 22, 1915. Fruit type. (NY.); Britton 268 and 269, Cauldwells, March 26, 1904.



(NY.); Small, Mosier and Small s.n., June 23, 1915. (M.); Small,  
Mosier and Small s.n., Ross Costello Hammock, June 24, 1915.  
(NY.); Small et al 6526, Ross Hammock, June 23, 1915. (NY.);  
Small and Small 4765, Miami, 1913. (NY.); Small 8631, Redlands  
District, May 13, 1918. (NY.); Small and Carter 2555, Peters'  
Prairie, November 10, 1906. (NY.); Scull s.n., Silver Palm,  
July 6, 1938. (F.).





Plate XI. Galactia smallii H. J. Rogers.

Type specimen.





Plate XII. Galactia smallii H. J. Rogers.

Cotype.



8. Galactia floridana T. & G. Fl. N. Am. 1: 288. 1838.

Type specimen: Dr. Burrows s.n. and undated in New York Botanical Garden, sandy places about Tampa Bay, Florida.

Plate No. XIII, page 49. Type.

Stem stout, prostrate, tomentose: leaves ternate; leaflets elliptic to oval or oblong ovate, obtuse and usually mucronulate, coriaceous, reticulate venation above, whitish beneath, 2 - 6 cm. long, usually twice as long as broad: inflorescence 5 - 20 cm. long, flowers scattered the whole length or borne 2 - 4 together above the middle: flowers 12 - 15 mm. long; calyx 7 - 8 mm. long; corolla showy, pale reddish purple; standard obovate, notched deeply at the apex, tapered gradually to the base of the claw; wing petals with conspicuous appendages at the base, keel petals longer, without appendages: legumes 4 - 5 cm. long, tomentose.

Sandy soil, Georgia, Florida and Alabama. Map. Plate II, page 17.

This species is quite variable in vegetative characters and might well be considered as a polymorphic species, but due to the extremes in the variation of the inflorescences, two of these subdivisions are being maintained. It will be of interest to note that the two recognized varieties occur along the northern extension of the range of the species. A detailed field study of this group in Northern Florida, Southern Alabama and Georgia would be most desirable.



KEY TO THE VARIETIES OF GALACTIA FLORIDANA

1. Inflorescence about the length of the leaves, under 10 cm. long . . . . . A. var. typica
1. Inflorescence longer than the leaves, 10 - 20 cm. long.
  2. Terminal leaflet stalked . . . . B. var. longeracemosa
  2. Terminal leaflet sessile . . . . C. var. brevipes



8A. Galactia floridana var. typica n. var.

Entire plant covered with whitish pubescence, the leaves coriaceous with whitish veins above, decidedly paler beneath. Often confused with G. regularis (L.) BSP., but can be separated on the basis of flower size and the fact that the standard of this species is notched at the apex while that of G. regularis is decidedly pointed. Range of the species.

ALABAMA: Bush 80, Spring Hill, Mobile County, August 18, 1897. (NY.); Bush 302, Spring Hill, Mobile County, August 6, 1897. (NY.,M.); Mohr s.n., Spring Hill, Mobile County, July 28, 1892. (C.); Graves 1092, Spring Hill, Mobile County, May 1918. (M.).

FLORIDA: Curtiss 678, Indian River, Brevard County, undated, (M.); Crevasse s.n., Iverness, Citrus County, August 12, 1940. (M.); Small, Mosier and Small 6440, Murden Hammock, Dade County, June 22, 1915. (NY.); Chapman 3958, Apalachicola, Franklin County, June 30, 1894. (NY.,M.); Churchill s.n., Tampa, Hillsboro County, March 31, 1897. (M.); Nash s.n., Tampa, Hillsboro County, August 24, 1895. (NC.); Britton and Wilson 14, Tampa, Hillsboro County, August 25, 1903. (NY.); Nash 2474, Tampa, Hillsboro County, August 24, 1895. (M.); Hitchcock s.n., Lee County, 1900. (M.); Kirk s.n., Limestone, Hardee County, March 22, 1947. (F.); Tracy 6882, Braidentown, Manatee County, May 7, 1900. (NY.); Tracy 7733, Braidentown, Manatee County, July 20, 1901. (NY.); Barnhart 2029, Ocean Springs, Marion County, April 26, 1897. (NY.); Platt 2453, Jessamine, Pasco



County, 1897. (NY.); Barnhart 2089, Johnson, Putnam County, 1897. (NY.); Curtiss 6895, Live Oak, Suwannee County, September 11, 1901. (NY.); Curtiss 6897, Live Oak, Suwannee County, September 11, 1901. (M.); Rugel s.n., St. Marks, Wakula County, June 1843. (M.).



8B. Galactia floridana var. longeracemosa Vail, Bull. Torr. Bot. Club 22: 503. 1895.

Type specimen: J. H. Simpson s.n., Florida, 1889. This specimen cited by Miss Vail, but no reference as to its location is given. The present writer has not found this specimen.

The entire plant densely strigose pubescent, the stem stouter than in var. typica, the entire plant more robust, and the inflorescence much exceeding the leaves. The flowers grouped at regular intervals above the middle of the rachis. Specimens of this variety bearing the same collection number, date, and location as specimens of the var. typica.

Southern Alabama, Georgia and Florida.

ALABAMA: Bush 302 and 304, Spring Hill, Mobile County, August 3, 1897. (M.).

FLORIDA: Curtiss 5727, Indian River, Brevard County, 1896. (M., NY.).



8C. Galactia floridana var. brevipes (J. K. Small) comb. nov.

Synonymy:

Galactia brevipes Small, Fl. Southeastern U. S., 649, 1332.  
1903.

Type specimen: John K. Small s.n. in New York Botanical Garden  
from Traders Hill, Charlton County, Georgia, July 24 - 26,  
1895.

Plate XIV, page 50. Type.

The habit of this plant resembles var. longeracemosa, from  
which it differs in that the leaves are composed of three ses-  
sile leaflets instead of the terminal leaflet being stalked and  
the flowers are more evenly distributed throughout the length  
of the rachis.





Plate XIII. Galactia floridana T. & G.

Type specimen.





Plate XIV. Galactia floridana T. & G. var. brevipes  
(Small) Rogers.

Type specimen.



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9. Galactia fasciculata Vail, Bull. Torr. Bot. Club, 22: 505. 1895.

Type specimen: George V. Nash 2480 in New York Botanical Garden. Climbing on small bushes, Tampa, Hillsboro County, Florida. August 24, 1895.

Plate No. XV, page 52.

Stem stout, loosely twining, finely retrorse canescent leaves ternate; leaflets essentially oval, 1 - 3 cm. wide, slightly longer, deeply emarginate, finely appressed pubescent above, appressed silky villous and paler beneath: racemes 2 - 7 in axils of the leaves, flexuose and often branched: flowers about 15 mm. long; calyx 7 - 8 mm. long, densely silky pubescent; corolla 12 - 15 mm. long, pale purple; standard rounded at the apex, tapered to the base of the claw: legume not seen.

Central Florida. Map. Plate III, page 18.

This seemingly rare species is easily recognized by its roundish, deeply emarginate leaves, and the fascicled, flexuose racemes.

FLORIDA: Nash 2480, Tampa, Hillsboro County, August 24, 1895. Type (NY.); Isotypes (NC., G.); Britton and Wilson s.n., Enterprise, Volusia County, Florida, August 24, 1903. (NY.).





Plate XV. Galactia fasciculata Vail.

Type specimen.



10. Galactia canescens Benth, Commentationes de Leguminosarum Generibus. "N.V.", Vienna, 62. 1837, and Ann. Wien. Mus. 2: 126. 1838.

Synonymy:

Heterocarpaea texana Scheele, Linnaea 21: 467. 1848.

Type specimen: Drummond 81, Texas. 1835. Kew Herbarium, fide Director, Royal Botanic Gardens, 1848.

Plate XVI, page 55.

Stem moderately stout, branched, prostrate, densely canescent throughout: leaves ternate, coriaceous, slightly hirsute above, silky canescent and whiter beneath; leaflets obovate to oval, retuse or apiculate, 3 - 4 cm. long, usually about twice as long as broad: racemes 2 - 7 in the axils of the leaves, twisting profusely, few flowered and often becoming subterranean: flowers 8 - 10 mm. long; calyx silky hirsute; corolla purple: regular legumes about 4 cm. long; the subterranean fruits one-seeded, 1 cm. long, almost as wide as long.

Central and Southern Texas, and perhaps extending southward into Mexico since it has been collected along the Rio Grande.

Map. Plate III, page 18.

The numerous, twisted racemes and whitish pubescence of the entire plant easily distinguishes this species from any other, as does the usual presence of the underground fruits. These one-seeded fruits are not known in any other species of North American Galactia.

Miss Vail seems to have been in error, Bull. Torr. Bot. Club. 22: 505, when she credited Scheele with the original application of the specific name, since as shown in the synonymy above,



Scheele first described this plant twelve years after Bentham's publication.

The writer is indebted to the Director of The Royal Botanic Gardens, Kew, for the information regarding the type specimen of this species. He stated in personal correspondence on April 23, 1948 that Kew has "two sheets of Galactia canescens Bth., collected by Drummond in Texas in 1835 and written up in Bentham's handwriting. Each of them agrees with Bentham's description. They are numbered 81 and 146, and it has not been found possible to decide which was the actual type specimen on which Bentham based his description." The present writer is arbitrarily choosing the earlier number as the type. The following quote is from the same letter: "It may be pointed out that this paper of Bentham was published separately, entirely in Latin, at Vienna a year earlier, in 1837."

TEXAS: Parks R.1469, Bexar County, September 1940. (M.); Reverchon 1519, Burnett County, July 1885. (NY.); Reverchon 1519, Marble Falls, Burnett County, July 1884. (M.); Runyon s.n., Boca Chico, Mouth of Rio Grande, Cameron County. (US.); Reverchon s.n., Palo Pinto County, August 18, 1877. (M.); Stanfield s.n., San Marcos, Hays County, July 1896. (NY.); Sharp s.n., Hebbronville, Jim Hogg County, June 25, 1941. (M.); Palmer 10329, Runnels County, June 30, 1916. (M.); Hall 114, Hempstead, Waller County, June 10, 1872. (M.,NY.); Mexican Boundary Survey s.n., June 1853. (NY.); Drushel 8929, Padre Island, June 8, 1933. (NY.); Drummond s.n., s.d., probably a part of the type collection, (NY.); Lindheimer 370, 1846 - 47. (M.,NY.).





Plate XVI. Galactia canescens Benth.

This cannot be an isotype as shown on the herbarium sheet.



11. Galactia texana (Scheele) A. Gray, Bost. Jour. Nat. Hist.  
6: 170. 1850.

Synonymy:

Lablab texanus Scheele, Linnaea 21: 467. 1848.

Type specimen: Lindheimer 368, New Brunfels, Texas. July 1846.

The complete type specimen has not been located, and until more adequate material is located, the fragment of the type found in the Missouri Botanical Garden should be considered as the type. Fragment of type also in New York Botanical Garden Herbarium.

Plate XVII, page 58.

Stem slender, procumbent and twining, densely retrorse pubescent: leaves ternate; leaflets to 5 cm. long, oval, retuse, mucronulate, thin, minutely appressed pubescent to glabrate above, appressed sericeous to sparingly villous beneath: root woody: flowers, 5 - 6, evenly spaced on the rachis, about 1 cm. apart; calyx 7 - 8 mm. long, lobes relatively long and narrow; corolla pale purple; standard 9 - 10 mm. long, slender, notched at the apex, long tapered to a thin claw; keel petals not spurred: legume 6 - 8 cm. long, strongly falcate, densely silky, 9 - 10 seeded.

Central and South Central Texas. Map. Plate III, page 18.

This is the only species west of the Mississippi River with the thin oval leaflets.

TEXAS: Groth 155, Cibolo River, Bracken, Comal County, July 24, 1903. (NY.); Palmer 10015, Canyons, Kerr County, June 2, 1916. (M.); Howard s.n., Eagle Pass, Maverick County,



undated. (M.); Tharp 829, Austin, Travis County, 1921. (NY.);  
Schott s.n., Rio Bravo del Norte, Near Oak Creek, October 17,  
1852. (NY.).



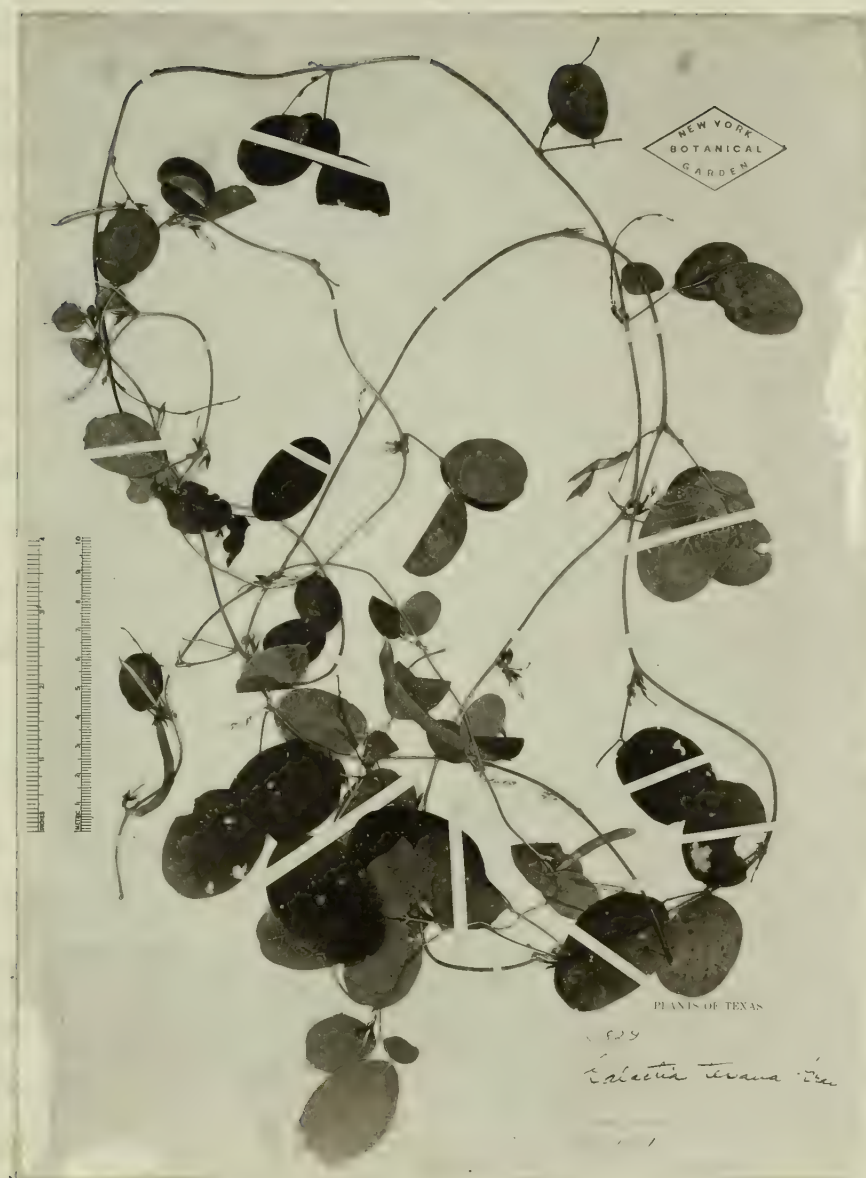


Plate XVII. Galactia texana (Scheele) A. Gray.



12. Galactia mollis Michaux. Fl. Bor. Amer. 2: 61. 1803.

Synonymy:

Galactia pilosa Nutt. Gen. 2: 116. 1818. Not Elliott.

Type specimen: Michaux, Michaux Herbarium, National Museum, Paris. Lower specimen of the sheet only.

Plate XVII, page 63. Type.

Stem stout, often branched, prostrate or loosely twining, somewhat hoary pubescence throughout to almost glabrate: leaves ternate; leaflets oval to oblong oval, coriaceous, bright green and scabrous above, villous and decidedly whitened beneath, 3 - 4 cm. long, slightly more than one-half as wide as long; flowers densely crowded on the shortened rachis; pedicle exceedingly elongate; inflorescence to 20 cm. long; calyx 5 - 6 mm. long, lobes relatively broad and rounded, densely pubescent; corolla reddish, even in herbarium material; standard 8 - 9 mm. long, broadly oval, rounded but obscurely notched at the apex, faintly auricled at the base; wings and keel petals not spurred: legume 2.5 - 3.5 cm. long, straight, densely pubescent.

Coastal regions of South Carolina, Georgia and Florida.

Map. Plate III, page 18.

This is a decidedly variable group as to the vegetative characters of pubescence and leaf shape. The flower and inflorescence characters are exceedingly constant in that the pedicle is always very long and the small reddish flowers are closely grouped at the top. The specimens of the varietal type seem to be more slender and less robust and may represent an ecological form of the species.



KEY TO THE VARIETIES OF GALACTIA MOLLIS

1. Entire plant densely pubescent, leaves broadly oval.
  1. var. typica
1. Entire plant only slightly pubescent, leaves narrowly oval.
  2. var. nashii



12A. Galactia mollis Michx. var. typica n. var.

Range of the species:

FLORIDA: West s.n., Wacahoota, Alachua County, May 5, 1930. (F.); Barnhart 2053, Hawthorn, Alachua County, April 27, 1897. (NY.); Rhoads s.n., Cocoa, Brevard County, May 23, 1937. (F.); West and Arnold s.n., Citrus County, June 24, 1941. (F.); Elder 471, Pine Island, Dade County, February 22, 1941. (D.); Curtiss 676, Jacksonville, Duval County, May 27, 1893. (M.,NY.); Murrill s.n., Jacksonville, Duval County, May 28, 1941. (F.); Lighthipe s.n., St. Nicholas, Duval County, May 12, 1890. (NY.); Small s.n., Liberty County, June 1895. (NY.); Barnhart 2176, Johnson, Putnam County, 1897. (NY.); Laessle s.n., Welaka, Putnam County, May 18, 1940. (F.); Rugel s.n., St. Marks, Wakulla County, June 1843. (NY.); Chapman s.n., s.d., Aspalago. (M.).

GEORGIA: Harper 825, Bulloch County, June 7, 1901. (M,NY.); Small s.n., Bainbridge, Decatur County, June 4, 1895. (NY.); Cuthbert s.n., Augusta, Richmond County, June 16, 1903. (F.); Cleveland s.n., 1860. (F.).

SOUTH CAROLINA: H. L. R. s.n., s.d., Aiken, Aiken County. (NY.); Norton s.n., Hartsville, Darlington County, July 27, 1920. (NC.).



12B. Galactia mollis var. nashii Vail ex Small. Man. S. E. Fl.  
720. 1933.

Type specimen: George V. Nash 880, High pine land, Eustis,  
Lake County, Florida, July 1894. New York Botanical Gar-  
den Herbarium.

Plate XVIII, page 64. Type.

Found only within a restricted area within the range of  
the species.

FLORIDA: Curtiss 4274, Jacksonville, Duval County, 1893.  
(NY.); Hitchcock s.n., Eustis, Lake County, 1894. (F.,NY.);  
Nash 880, Eustis, Lake County, July 1894. (NY.); Nash 919,  
Eustis, Lake County, June 1 - 15, 1894. (M.,NY.); Nash 1767,  
Eustis, Lake County, 1895. (NY.); West and Arnold s.n., Citra  
Marion County, June 4, 1941. (F.); O'Neill s.n., St. Leo, Pasco  
County. (F.); Curtiss s.n., Live Oak, Suwannee County, June 7,  
1900. (F.); West s.n., Perry, Taylor County, June 5, 1947. (F.);  
Hood s.n., Orange City, Volusia County, May 28, 1910. (F.);  
Garber s.n., Rosewood, June 18, 1876. (NY.); Curtiss 6584, Dry  
pine barrens, June 1898. (M.,NY.).



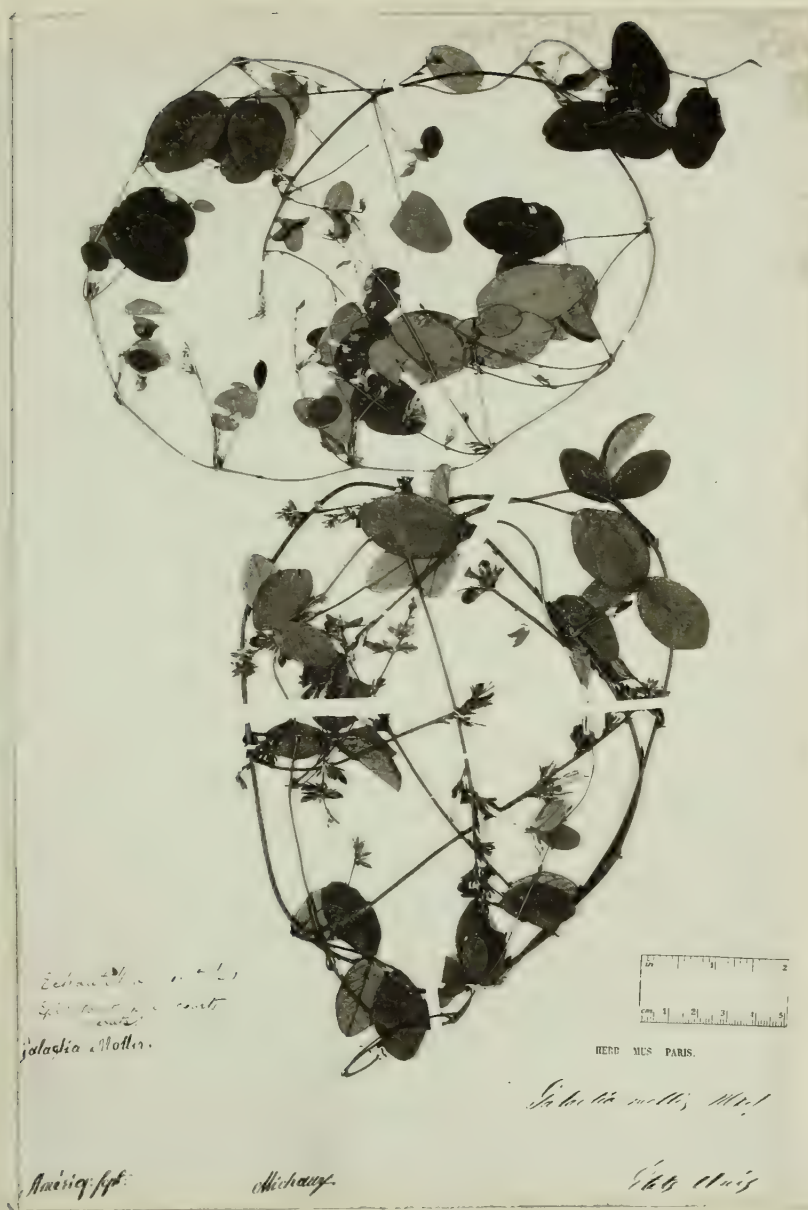


Plate XVII. Galactia mollis Michaux.

Type specimen.

Photographic negative provided by National Museum, Paris.



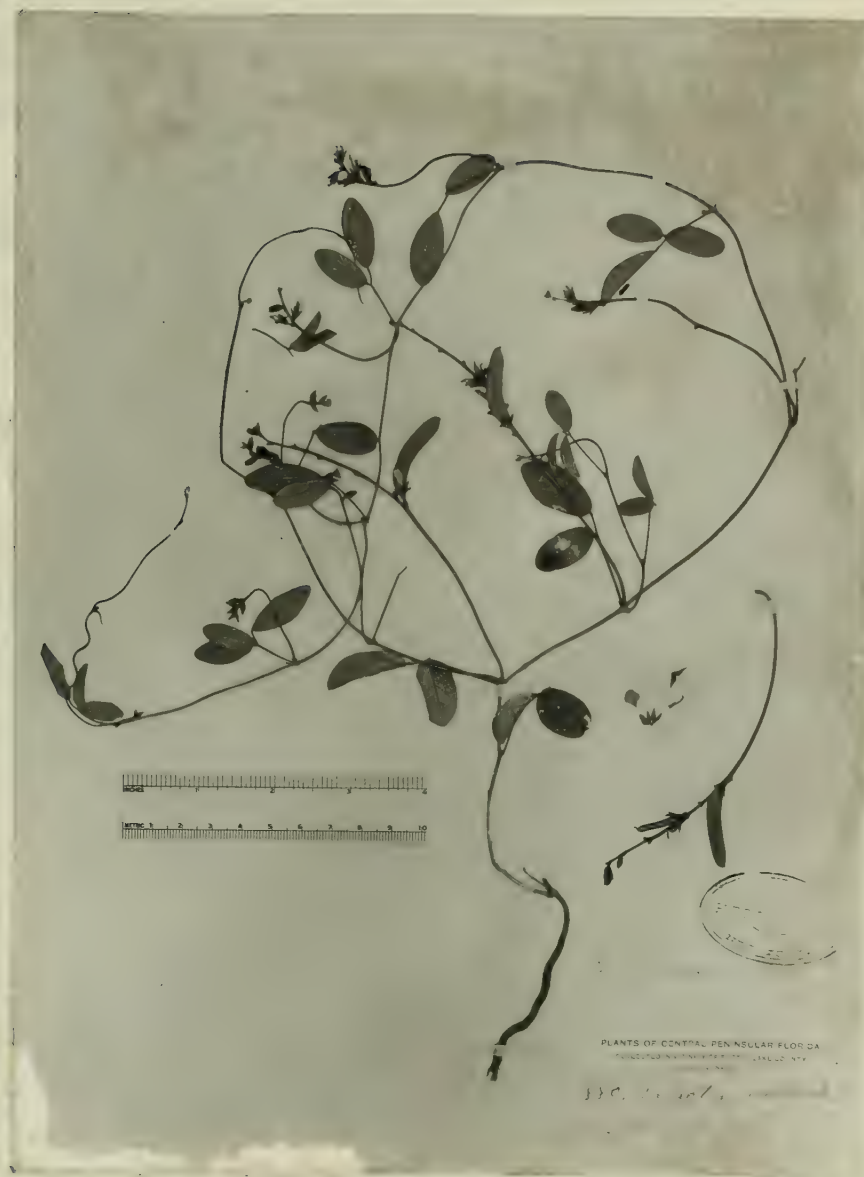


Plate XVIII. Galactia mollis Michx. var. nashii Vail ex Small.

Type specimen.



13. Galactia mississippiensis (Vail) Rydb. Flora of the  
Prairies and Plains of Central North America. 1932.

Synonymy:

Galactia mollis Nutt. Gen. 2: 117. 1818. Not Michx. 1803.

Galactia pilosa Ell. Bot. S. C. and Ga. 2: 238. 1824. Not  
Nuttall. 1818.

Galactia villosa Eat. & Wright. N. Am. Bot. 248. 1840.

Not Wight and Arnott, Prodromus Fl. Ind. Orient I.  
1834.

Galactia volubilis (L.) Britton var. mississippiensis

Vail. Bull. Torr. Bot. Club 22: 500. 1895.

Type specimen: Dr. E. J. Palmer 112, in the Indian Territory  
chiefly on the False Washita, between Fort Cobb and Fort  
Arbuckle, 1868. This specimen from the New York Botani-  
cal Garden is proposed as the type specimen for this  
series because, since it was in the Torrey Herbarium, it  
can be presumed that this was one of the specimens to  
which Miss Vail referred when she gave the range of the  
variety as "Missouri, Arkansas, Indian Territory and  
Louisiana." This same specimen is annotated by Rydberg  
as "G. mississippiensis (Vail)."

Plate XIX, page 78.

Stem slender, twining; pubescence dense, spreading or  
retrorse: leaflets 1 - 3 cm. long, oval, ovate or oblong-  
ovate; finely hirsute on both surfaces, paler beneath: root  
fusiform, usually branched: peduncles and rachises densely  
strigillose pubescent, subsessile and few flowered to 15 cm.



long and many flowered, the peduncle much shorter than the rachis: flowers 7 - 9 mm. long; calyx 4 - 6 mm. long, spreading pilose; corolla pink-purple; standard notched at the apex, auricled at the base; legume 3 - 5 cm. long, densely pilose.

Dry thickets and open woods, Florida to Texas, Kansas and New York. Map. Plate III, page 18.

This species was apparently first properly recognized and described by Thomas Nuttall in 1818, but he unfortunately ascribed the name G. mollis which Michaux had used for an entirely different plant in 1803. Elliott again recognized the same plant in 1824, but mistakenly thought that it was the plant that Nuttall had called G. pilosa, 1818, and used that name with a question mark between the specific name and the authority. This situation is unique in that the G. pilosa of Nuttall is the same plant as the G. mollis of Michaux which invalidated the previous description of Nuttall. Eaton and Wright again recognized it as an un-named species in 1840, but erred in that they again applied a non-valid name, this time using G. villosa which Wight and Arnott had given to a tropical species. This third futile attempt at naming this species ended the first era of confusion.

The second series of mistakes was started by Dr. Britton, Mem. Torr. Bot. Club 5: 208. 1894, when he presumed that this plant, in the New York area, was the Hedysarum volubile of Linnaeus, Sp. Pl. 750. 1753. It is indeed surprising that Miss Vail, Bull. Torr. Bot. Club 22: 500. 1895; and Fernald, Rhodora 39: 433. 1937, who both claimed to have examined the Linnaean



type of Britton's G. volubilis, as represented by the plate of Hedysarum trifolium scandens, Dill. Elth. 173, pl. 43, fig. 170, and failed to recognize that this was an entirely different plant than the one found in the Northeastern States. Miss Vail, however, did recognize that the mid-western expression of the plant differed sufficiently from the Linnaean type that she gave it the varietal status of G. volubilis (L.) Britton var. mississippiensis, Bull. Torr. Bot. Club 22: 500. 1895.

Rydberg again followed this same concept and elevated Miss Vail's variety to G. mississippiensis (Vail) Rydb., Fl. Prair. and Pl. Cent. N. A. 1932., but apparently still considered it as a variation found only in the middle west since he listed its range as: "Dry sandy soil, Ill.-Kan.-Tex.-La."

ALABAMA: Wiegand and Manning 1677, eight miles south of Eufaula, Barbour County, August 11, 1927. (G.); Egbert s.n., Etuwah County, July 9, 1898. (M.); Earle and Baker s.n., Auburn, Lee County, August 9, 1897. (G.); Baker s.n., Auburn, Lee County, August 1929. (D.); Mohr s.n., Mobile, Mobile County, July 30, 1887. (NY.); Bush 82, Spring Hill, Mobile County, August 2, 1897. (M.); Buckley s.n., (M.).

ARKANSAS: Plank s.n., Benton County s.d., (NY.); Palmer 4464, Eureka Springs, Carrol County, September 24, 1913. (M.); Egbert s.n., Flat Springs, Garland County, July 1896. (M.); Bush 918, Fulton, Hempstead County, September 19, 1900. (M.); Demaree 15553, Magnet Cove, Hot Springs County, August 8, 1927. (M., NY.); Runyon 1205, Hot Springs, Garland County, 1928. (NY.); Kellogg s.n., Baker Springs, Howard County, October 9, 1909.



(M.); Demaree 23410, Calico Rock, Izard County, May 8, 1942. (G., NY.); Demaree 19914, Knoxville, Johnson County, August 13, 1939. (G., M.); Eggert s.n., Pine Bluff, Jefferson County, October 4, 1896. (M.); Merril 415, Little Rock, Pulaski County, July 12, 1938. (D.).

DELAWARE: Commons s.n., Wilmington, New Castle County, September 4, 1874. (NY.); Latucee s.n., Wilmington, New Castle County, s.d. (G.).

DISTRICT OF COLUMBIA: Chickering Jr. s.n., Washington, September 18, 1878. (M.); Steele s.n., Washington, July 16, 1896. (M.); Bebb s.n., s.d., (G.).

FLORIDA: Murrill s.n., Gainesville, Alachua County, June 24, 1937. (D.); Fredholms 5526, Indian River, Brevard County, October 29, 1902. (M.); Vanderbilt s.n., Dade County, April 9, 1941. (NY.); West s.n., Quincy, Gadsden County, September 8, 1931. (F.); Henry and Boggs s.n., Tallahassee, Leon County, October 20, 1942. (F.); Nash s.n., Tallahassee, Leon County, August 7 - 9, 1895. (NC.); Small s.n., Ft. Pierce, St. Lucie County, May 10, 1918. (NC.); Ruth s.n., Handley, June 25, 1918. (NY.).

GEORGIA: Eyles 4112, Wilmington Island, Chatham County, June 22, 1938. (D.); Pyron s.n., Athens, Clark County, July 29, 1929. (D.); Small s.n., Dekolb County, July 12, 1893. (D.); Ravenel s.n., Rome, Floyd County, s. d., (M.); Wiegand and Manning 1679, Lagrange, Troup County, August 15, 1927. (G.); Harper 391, Dalton, Whitfield County, s. d. (NY.); Alexander, Everett and Pearson s.n., Near Ascroth, October 2, 1933. (NY.).



INDIANA: Friesner 19590, wooded ravine in State Forest, Harrison County, September 2, 1945. (G.); Deam 33194, near Van Buren Ridge school house, Perry County, October 1, 1920. (G.).

KANSAS: Hitchcock 666, sandy woods, Chatauqua County, 1896. (H.,M.,NY.).

KENTUCKY: Braun s.n., Clear Creek, Bell County, July 15, 1937. (G.); Eggleston 5420, Kuttawa, Lyon County, October, 1909. (M.); Rogers 916, Honeybee, McCreary County, August 28, 1940. (K.); Smith and Hogdon 3879, Monticello, Wayne County, July 1937. (G.,NY.).

LOUISIANA: Claycomb s.n., Lafayette, Lafayette Parish, 1942. (G.); D. S. and H. B. Correll 9847, Pineville, Rapides Parish, July 29, 1938. (D.,G.,NY.).

MARYLAND: Wherry and Pennell 12820, Salisbury, Wicomico County, September 1925. (M.).

MISSISSIPPI: Tracy 4420, Biloxi, Harrison County, 1898. (G.,M.); Seymour 91914.36, Ocean Springs, Jackson County, October 14, 1891. (D.,M.,NC.); Hilgard s.n., 1885. (M.).

MISSOURI: Bush 49, Eagle Rock, Barry County, October 29, 1896; Mackenzie 146, Eagle Rock, Barry County, October 19, 1896. (M.); Dewart s.n., Seligman, Barry County, August 21, 1892. (M.); Bush 49, White River Bluffs, Barry County, October 29, 1896. (M.); Steyermark 24455, Wisdom, Benton County, August 8, 1937. (M.); Steyermark 14117, Bollinger County, August 1, 1937. (M.); Eggert s.n., Butler County, July 27, 1892. (G.,M.); Palmer 16348, Poplar Bluff, Butler County, September 11, 1919.



(M.); Steyermark 11486, Ellismore, Butler County, July 8, 1936.  
 (M.); Steyermark 11371, Rombauer, Carter County, July 7, 1936.  
 (M.); Steyermark 22990, Chadwick, Christian County, July 6, 1937.  
 (M.); Steyermark 24980, St. Thomas, Cole County, July 6, 1937.  
 (M.); Steyermark 24254, Long Lane, Dallas County, August 5, 1937.  
 (M.); Steyermark 19395, Jodwin, Dent County, August 3, 1935.  
 (M.); Steyermark 12660, Stone Hill, Dent County, August 6, 1936.  
 (M.); Bush 194, Campbell, Dunklin County, July 19, 1885. (M.);  
Kellogg 26022A, Kennett, Dunklin County, August 6, 1932. (M.);  
Bush s.n., Malden, Dunklin County, September 12, 1893. (M.);  
Kellogg 26021A, Crawley Ridge, Dunklin County, August 7, 1932.  
 (M.); Steyermark 19807, St. Clair, Franklin County, September  
 28, 1935. (M.); Steyermark 14462, Peace Valley, Howell County,  
 August 12, 1934. (M.); Steyermark 23433, Willow Springs, Howell  
 County, July 20, 1937. (M.); Ward s.n., Pilot Knob, Iron County,  
 August 24, 1878. (M.); Palmer 2833, Joplin, Jasper County, Octo-  
 ber 11, 1909. (M.); Palmer 1115, Joplin, Jasper County, July 4,  
 1907. (M.); Steyermark 25197, Lebanon, Laclede County, August  
 23, 1937. (M.); Steyermark 19916, Raydon, Maries County, Octo-  
 ber 13, 1935. (M.); Steyermark 25542, Vienna, Maries County,  
 August 29, 1937. (M.,NY.); Steyermark 20577, Riverview, Morgan  
 County, October 24, 1936. (M.); Bush 4989, Noel, McDonald  
 County, August 7, 1908. (G.,M.,NY.); Bush 32, McDonald County,  
 July 24, 1892. (G.,M.); Palmer 4989, Noel, McDonald County, Aug-  
 ust 7, 1908. (M.); Palmer 4299, Noel, McDonald County, Septem-  
 ber 12, 1913. (M.); Bush s.n., Newton County, July 15, 1893.  
 (M.,NY.); Trelease s.n., Alton, Oregon County, July 29, 1895.  
 (M.); Steyermark 14354, Greer, Oregon County, August 9, 1937.



(M.); Steiermark 12010, McCabe, Ozark County, July 19, 1936.  
 (M.); Steiermark 20045, Gardner National Forest, Ozark County,  
 September 12, 1936. (M.); Palmer 32884, Ozark County, October  
 7, 1927. (M.); Steiermark 13963, Perryville, Perry County,  
 July 29, 1934. (M.); Steiermark 25354, Jerome, Phelps County,  
 August 26, 1937. (M.); Steiermark 19433, Spring Creek, Phelps  
 County, August 10, 1935. (M.); Steiermark 19352, Waynesville,  
 Pulaski County, July 28, 1935. (M.); Steiermark 20096, Prewitt  
 Springs, Pulaski County, September 19, 1936. (M.); Child s.n.,  
 Crocker, Pulaski County, 1928. (M.); Steiermark 19727, Center-  
 ville, Reynolds County, September 21, 1935. (M.); Steiermark  
14313, Bennett, Ripley County, August 5, 1934. (M.); Steier-  
mark 20472, Highway 14, Ripley County, October 18, 1936. (M.);  
Eggert s.n., Scott County, August 31, 1894. (M.); Steiermark  
20754, Commerce, Scott County, November 7, 1936. (M.); Bush  
s.n., Shannon County, April 17, 1891. (M.); Bush s.n., Shannon  
 County, July 17, 1899. (M.,NY.); Bush 6538, Monteer, Shannon  
 County, October 23, 1901. (G.,M.,NY.); Steiermark 19475,  
 between Augusta and Klondike, St. Charles County, August 12,  
 1935. (M.); Steiermark 2025a, Monegaw Springs, St. Clair County,  
 October 3, 1936. (M.); Steiermark 24364, Iconium, St. Clair  
 County, August 7, 1937. (M.); Hoffman s.n., St. Louis County,  
 September 2, 1917. (M.); Steiermark 19879, Allenton, St. Louis  
 County, October 9, 1935. (M.); Steiermark 20777, Ardeola, Stod-  
 dard County, November 8, 1936. (M.); Bush 556, Swan, Taney  
 County, September 24, 1899. (M.); Steiermark 14530a, Arroll,  
 Texas County, August 15, 1934. (M.); Steiermark 12946, Floyd,



Washington County, August 14, 1936. (M.); Steyermark 21140, Mill Springs, Wayne County, August 23, 1936. (M.); Steyermark 11216, Williamsville, Wayne County, June 28, 1936. (M.); Steyermark 11268, Greenville, Wayne County, June 28, 1936. (M.); Steyermark 23932, Parkers Hill, Webster County, July 30, 1937. (M.); Steyermark 24996, Manes, Wright County, August 20, 1937. (M.); Demaree 15476, Hazen, July 25, 1937. (M., NY.).

NORTH CAROLINA: Rogers 3370, Harlowe, Carteret County, August 6, 1946. (D.); Ashe s.n., Clay County, September, 1893. (NC.); Correll 2965, Kings Mountain, Cleveland County, July 23, 1935. (G.); Rogers 3369, North of Harlow, Craven County, August 6, 1946. (D.); Blomquist 3939, Durham County, July 30, 1932. (D.); Oosting 33327, Durham County, August 15, 1933. (D.); Eastman s.n., Gate 3, Duke Forest, Durham County, August 15, 1944. (D.); Rogers 3126, Durham, Durham County, July 18, 1946. (D.); Rogers 3130, Catsburg, Durham County, July 19, 1946. (D.); Rogers 3474, Durham, Durham County, August 24, 1946. (D.); Rogers 3475, Durham County, August 24, 1946. (D.); Patten 177, Walkertown, Forsyth County, July 14, 1942. (D.); Patten 122, Nashville, Franklin County, July 7, 1942. (D.); Oosting 33515, Greensboro, Guilford County, August 18, 1933. (D.); Causey s.n., Guilford County, September 16, 1932. (NC.); Thaxter s.n., Cullowhee, Jackson County, 1887. (G.); Scholz s.n., Ruks Farm, Macon County, July 14, 1933. (NC.); Rodgers 159, Crystal Lake, Moore County, July 12, 1940. (D.); Oosting s.n., Boden, Montgomery County, August 1, 1933. (D.); Oosting 33250, Piney Mountain, Orange County, August 2, 1933. (D.); Radford and



Stewart 229a, Chapel Hill, Orange County. (NC.); Margolis s.n., Chapel Hill, Orange County, July 27, 1939. (NC.); Rogers 2477, Hollow Rock, Orange County, August 25, 1946. (D.); Rodgers 180, Sampson County, July 16, 1940. (D.); Small s.n., Albemarle, Stanley County, August 22, 1894. (NY.); Beardsley and Kofoid s.n., Swain County, July 20, 1891. (M.,NY.); Beardsley and Kofoid s.n., dry sandy soil at 1800 feet, Swain County, August 10, 1891. (G.); Oosting 26131, Taxaway Gorge, Transylvania County, July 12, 1936. (D.); Peattie 963, Tryon, Polk County, June 16, 1921. (NC.); Buell s.n., Raleigh, Wake County, July 30, 1944. (SC.); Oosting 33182, Cary, Wake County, July 2, 1933. (D.); Rogers 3131, Goldsboro, Wayne County, July 30, 1946. (D.); Small s.n., Crowder's Mountain, July 1896. (NY.).

NEW JERSEY: Mackenzie 6726, Bermett, September 1915. (D.).

NEW YORK: Brisky s.n., Flushing, Long Island, Queens County, August 1896. (NY.); Miller s.n., Long Pond, Wading River, Long Island, Suffolk County, August 23, 1878. (G.,M.).

OHIO: Bartley and Pontius 20, Liberty Township, Jackson County, August 8, 1936. (NY.).

OKLAHOMA: Bush 1411, Sapula, Creek County, September 21, 1895. (NY.); Bush 1407, Sapula, Creek County, September 22, 1895. (M.); Bush 124, Sapula, Creek County, September 21, 1895. (M.); Emig 870, Arbuckle Mountain, Davis, Murray County, August 5, 1917. (M.); Palmer 112, False Washita, between Fort Cobb and Fort Arbuckle, 1868. Type. (NY.); Merrill 776, Platt National Park, June 28, 1935. (NY.).

PENNSYLVANIA: Porter s.n., near Lancaster, Lancaster



County, October 4, 1862. (G.).

SOUTH CAROLINA: Davis s.n., Anderson, Anderson County, October 8, 1912. (M.); Davis 1519, Pelzer, Anderson County, July 17, 1919. (M.); Isle of Palms, Charleston County, August 27, 1909. (NC.); Coker s.n., Huntsville, Darlington County, August 14, 1908. (NC.); Smith 1016, Witherspoon Island, Darlington County, July 21, 1941. (NC.); Smith 1573, Lauther's Lake, Darlington County, July 21, 1941. (NC.); Smith 742, Near Darlington Country Club, Darlington County, August 3, 1940. (NC.); Smith 1015, Sauthers Lake, Darlington County, July 21, 1941. (NC.); Norton s.n., Hartsville, Darlington County, July 15, 16, 1920. (NC.); Godfrey and Tryon 1308, Columbia, Lexington County, August 7, 1939. (G.).

TENNESSEE: Svenson 9031, Kinston Springs, Cheatham County, July 13, 1938. (G.); Svenson 4397, White Bluff, Dickson County, September 1, 1930. (G.); Gattinger s.n., Harpeth Hills near Nashville, Davidson County, September 1883. (G.); Seldon 205, Sewanee, Franklin County, 1897. (NY.); Clalmgh 129, Ryall Springs, Hamilton County, August 13, 1934. (D.); Kearney s.n., Knox County, August 6, 1894. (G., NY.); King 209, Lewis County, July 28, 1945. (NY.); Clalmgh 152, Tellico Plains, Monroe County, August 17, 1945. (D.); Svenson 227, Cedar glades, Rutherford County, August 12, 1922. (G.).

TEXAS: Corey 36386, Robb's Palm Grove, Cameron County, November 14, 1940. (G.); Reverchon s.n., Dallas, Dallas County, 1775. (M.); Slatfelter s.n., Dallas, Dallas County, June 16,



1898. (M.); Reverchon 2650, Dallas, Dallas County, June 6,  
 1901. (M.); Lindheimer s.n., Houston, Harris County, August  
 1842. (M.); Hall 113, Houston, Harris County, June 12, 1872.  
 (M.,NY.); Fisher s.n., Houston, Harris County, September 7,  
 1917. (M.); Bodin 7090, Doffin, Jarvis County, September 1891.  
 (NY.); Warner s.n., Willis, Montgomery County, s.d. (M.);  
Corey 10888, Newton, Newton County, December 4, 1934. (G.);  
Moore 857, Camp Fannin, Smith County, July 18, 1944. (G.);  
Palmer 14225 and 12446, Fort Worth, Tarrant County, June 25,  
 1918. (M.); Ruth 551, Tarrant County, August 17, 1914. (G.);  
Corey 10203, Huntsville, Walker County s.d. (G.).

VIRGINIA: Steele s.n., Millsboro, Bath County, August 21,  
 1907. (M.); Curtiss s.n., Bedford County, August 1, 1871.  
 (G.,M.,NY.); Blake 10649, Dry stoney ground, Bailey's Cross  
 Roads, Fairfax County, August 18, 1928. (G.); Fernald and Long  
8741, one mile south of Skipper's, Greenville County, July 15,  
 1938. (G.); Fernald (and J. B. Lewis) 14721, below Pair's  
 Store, Greenville County, September 14, 1944. (G.); Fernald and  
Long 13666, Emporia, Greenville County, September 14, 1941.  
 (G.); Fernald and Long 12383, Jouner's Bridge, Isle of Wight  
 County, July 17, 1940. (G.); Fernald and Long 14444, Sandy pine  
 barrens south of Zuni, Isle of Wight County, June 29, 1942.  
 (G.); Grimes 3062, Williamsburg, James City County, September  
 19,1920.(G.,NY.); N. L. and E. G. Britton and Vail s.n., Suf-  
 folk, Nansemond County, July 2, 1892. (NY.); Fernald and Long  
12384, Cathole landing, Factory Hill, Nansemond County, July



18, 1940. (G.); Fernald, Long and Clement 15293, Chuckatuck Creek, Eclipse, Nansemond County, September 10, 1946. (G.); Fernald and Long 13371, northwest of Suffolk, Nansemond County, July 23, 1941. (G.); Fernald and Long 8740, Reid's Ferry, Nansemond County, July 13, 1938. (G.); N. L. and E. G. Britton and Vail s.n., Norfolk, Norfolk County, July 2, 1892. (NY.); Churchill s.n., Norfolk, Norfolk County, August 5, 1927. (M.); Fernald and Long 14352, Near Northwest, Norfolk County, June 30, 1942. (G.); Fernald and Long 12385, back of sand dunes, Sand Ridge, Princess Anne County, July 15, 1940. (G.); Fernald and Long 3981, north of Blackwater River, Princess Anne County, August 7, 1934. (G.); Fernald and Long 3979, Little Neck, Princess Anne County, August 8 - 9, 1934. (G.); Fernald and Long 4920, Great Neck, Princess Anne County, September 5, 1935. (G.); Mackenzie 1692, Princess Anne County, September 5, 1905. (M., NY.); Allard 8107, Massanutten Mountain, Shenandoah County, September 2, 1940. (G.); Baldwin 5344, Fort Valley, Shenandoah County, August 26, 1945. (G.); Fernald and Long 8742, Smith's Ferry at Bailey's Sein Beach, Southampton County, July 19, 1938. (G.); Fernald and Long 9082, James River below Sunken Meadow Beach, Surry County, August 23, 1938. (G.); Fernald and Long 12694, Chub, Sussex County, August 22, 1940. (G.); Fernald and Long 6247, North of Moore's Mill, Sussex County, July 16, 1936. (G.); Fernald and Long 14353, Gray, Sussex County, July 3, 1942. (G.); Fernald and Long 8743, Harpersville, Warwick County, July 21, 1938. (G.); Menzel 139, Williamsburg, York County, July 20, 1939. (G.).



WEST VIRGINIA: Pollard and Maxon 29, Quinnermount, Fayette County, s.d., (NY.); Core s.n., Burlington, Mineral County, August 19, 1929. (D.); Core s.n., Burlington, Mineral County, August 17, 1931. (NY.); Plymale 31, Buffalo Creek, Wayne County, August 5, 1937. (G.).





Plate XIX. Galactia mississippiensis (Vail) Rydberg.



14. Galactia volubilis (L.) Britton, Mem. Torr. Bot. Club,  
5: 208. 1894.

Synonymy:

Hedysarum volubile L. Spl. Pl. 750. 1753.

Galactia macreei M. A. Curtiss, Bost. Jour. Nat. Hist.  
1: 120. 1837.

Galactia pilosa Nutt. var. macraei (Curtiss) T. & G., Fl.  
N. Am. 1: 287. 1838.

Galactia pilosa Nutt. var. angustifolia T. & G., Fl. N.  
Am. 1: 287. 1838.

Galactia volubilis (L.) Britton var. intermedia Vail,  
Bull. Torr. Bot. Club, 22: 508. 1895.

Type specimen: Dill. Elth. 173., pl. 43., f. 170. 1732.

Plate XX, page 86.

Stem slender to filiform, branched, twining; pubescence sparse, minute, retrorsely strigillose: leaves ternate; leaflets 1 - 4 cm. long, usually 3 times as long as broad; blades varying from oblong-ovate to linear or sometimes almost oval, minutely pubescent below, essentially glabrous above: root slender with one to several fusiform enlargements: peduncles and rachises slender, retrorsely strigillose or glabrous, sessile and few flowered on poorly developed plants, but up to 45 cm. long and many flowered on others; the peduncle normally as long as the rachis: flowers 11 - 14 mm. long; calyx 6 - 10 mm. long, sparsely appressed pubescent; corolla purple; standard pointed at the apex, auricled at the base: legume 4 - 6 cm. long, minutely strigillose.

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Coastal sands, interdunal areas and wet woods of the coastal plain, Texas to Florida and north along the coast to Southeastern Virginia. Map. Plate III, page 18.

The application of the name Galactia volubilis (L.) Britton has been in constant confusion since it was published in Mem. Torr. Bot. Club 5: 208. 1894. This confusion has resulted from Britton's misinterpreting the plant intended as Hedysarum volubile by Linnaeus. This name was applied to the plant figured in Dillineus, Hort. Elth. 173, t. 143, f. 170. 1732. Plate XX, page 86. Britton applied this name to the Galactia of the New York area and was followed in the error by Vail, Bull. Torr. Bot. Club 22: 205. 1896; by Small, Man. Fl. S. E. States, 719. 1933; and by Fernald, Rhodora 39: 433. 1937. Vail recognized that more than one type was involved and made a variety of the original species, G. volubilis (L.) Britton var. intermedia Vail. Small placed a part of the original species in G. parvifolia A. Richard, Essai Fl. Cuba I: 414. 1845, and Fernald revived G. Macraei M. A. Curtis, Bost. Jour. Nat. Hist. I: 120. 1837. Plate XXII, page 88.

This problem was solved when seeds taken from Rogers' specimen 3497a, Duke University Herbarium, Plate XXI, page 87, were grown to mature plants in the greenhouse at Duke University during the summer of 1947. The specimen of plate XXI, page 87, is obviously identical with the type of G. Macraei, Plate XXII, page 88, yet seeds taken from the legume marked by the arrow in Plate XXI, when grown to mature plants in the soil in the greenhouse resembled the original Dillinean plate as shown by the photograph of one of these living plants, Plate XXIII, page 89.



Miss Vail was entirely correct when in her footnote discussion of G. volubilis ~~she~~ said, "Galactia Macraei, the type specimen of which is preserved in Herb. Columbia College, is merely a very slender filiform-racemed variation."

Other plants fitting the description of Galactia parvifolia, as published by Small and by Fernald were removed from the coastal sands in the vicinity of Beaufort, North Carolina, and potted in woodland soil in the greenhouse. The mature tissues of the plants remained as when collected, but the new growth resembled the Dillinean plate and the plants grown from the seeds from the Ocracoke Island specimen.

When one considers the variation found among the specimens from Southern Florida which Small called G. parvifolia, and the response which similar plants from North Carolina show when subjected to more favorable conditions for growth, it becomes necessary to regard these plants as a part of the concept of Galactia volubilis (L.) Britton.



ALABAMA: Earle and Baker s.n., Auburn, Lee County, August 1, 1897. (M.,NY.).

FLORIDA: Murrill s.n., Gainesville, Alachua County, June 25, 1937. (M.); West and Arnold s.n., Gainesville, Alachua County, August 28, 1943. (F.); Enlow s.n., Gainesville, Alachua County, June 6, 1928. (F.); Rhoads s.n., Rockledge, Brevard County, September 14, 1936. (F.); Frye s.n., Charlotte County, August 8, 1946. (F.); West and Arnold s.n., Red Level, Citrus County, June 24, 1941. (F.); Quaintance 114, Lake City, Columbia County, July 14, 1893. (F.,M.); Small 1299, Cutler, Dade County, November 1903. (NY.); Carter 1113, Cutler, Dade County, November 1903. (NY.); Small s.n., Indian Creek, Miami, Dade County, November 22, 1912. (NY.); Britton 484, Snapper, Hammock, Cutler, Dade County, April 7, 1904. (NY.); Small and Nash s.n., Miami, Dade County, 1901. (NY.); Small 4056 and 4081, Between Miami and Coconut Grove, Dade County, 1912. (NY.); Small, Mosier and Small 6256, Ross Hammock, Dade County, June 26, 1915. (NC.); Small, Mosier and Small 6550, Ross Hammock, Dade County, June 24, 1915. (D.); Curtiss 585, Jacksonville, Duval County, June. (F.,M.); Curtiss 675, Dry thickets near Jacksonville, Duval County. (M.); Curtiss 5132, Jacksonville, Duval County, August 10, 1894. (NY.); Curtiss 4248, Jacksonville, Duval County, August 19, 1893. (M.,NY.); Lighthipe 625, Pablo, Duval County, July 27, 1897. (NY.); McFarlin 944, Bayport, Hernando County, August 7, 1927. (F.); McFarlin 9987, Sebring, Highlands County, July 9, 1934. (F.); Chapman s.n., Tampa Bay, Hillsboro County. (NY.); Nash 1160, Eustis, Lake County, July 1894. (NY.);



Hitchcock 69 and 70, Myers and Punta Rassa, Lee County, 1900. (M.,NY.); Standley 309, Along beach, Punta Rassa, Lee County, July 21, 1916. (M.); Rugel s.n., St. Marks and Tallahassee, Leon County, August 1843. (M.,NY.); Nash 2347, Tallahassee, Leon County, August 1895. (M.); Kurz s.n., Leon County, August 22, 1942. (F.); Schull s.n., Big Pine Key, Monroe County, February 2, 1940. (F.); Small and Cuthbert s.n., Big Pine Key, Monroe County, May 9, 1919. (F.); Small 3968, Big Pine Key, Monroe County, November 17 - December 2, 1912. (NY.); Lansing 2284, March 13, 1904. (NY.); Britton 539, Boot Key, Monroe County, April 1909. (NY.); Blodgett s.n., Key West, Monroe County, (NY.); Curtiss s.n., No Name Key, Monroe County (NY.); Small 7436, No Name Key, Monroe County, February, 1916. (NY.); Lewton s.n., Palm Springs, Orange County, August 9, 1894. (NY.); Curtiss 5557, Jupiter, Palm Beach County, September 20, 1895. (F.,M., NY.); Laessle s.n., Welaka, Putnam County, July 12, 1940. (F.); Murrill s.n., Marineland, St. Johns County, June 2, 1939. (F.); Rugel 144, St. Augustine, St. Johns County, September 1848. (NY.); West s.n., August 10, 1936. (F.); Small and Small 4511 and 4518, Hammocks near the Miami River, 1913. (NY.); Small and Wilson 1703, Near Camp Longview, May 1904. (NY.); Palmer 119, Biscayne Bay, 1874. (M.,NY.); Hood s.n., Deep Creek, June 4, 1910. (F.); Hood s.n., Blue Springs, August 27, 1911. (F.).

GEORGIA: Dugger s.n., Savannah, Chatham County, August 31, 1913. (M.); Small s.n., Near Stone Mountain, DeKolb County, July 17, 1893. (NY.); Cuthbert, sand hills and dry woods, Augusta, Richmond County, July 1898 to August 1899. (F.);



Harper 1058, Flint River, Sumter County, July 11, 1901. (M.); LeConte s.n., Sunbury. (NY.); Hopkins s.n., Wilmington Island, August 7, 1897. (NY.); Curtiss, Pinewoods. (M.).

LOUISIANA: Hale s.n., Alexandria, Rapides Parish. (NY.); Ball 626, Alexandria, Rapides Parish, June 10, 1899. (M.); Ball 22, Rayville, Richland Parish, July 27, 1898. (NY.); Tracy and Lloyd 177, Breton Island, July 18, 1900. (M.,NY.); Tracy and Lloyd 117, Breton Island, August 18, 1900. (M.,NY.).

MISSISSIPPI: Pollard 1147, Biloxi, Harrison County, August 1, 1896. (M.,NY.); Tracy 6832, Biloxi, Harrison County, July 4, 1900. (M.,NY.); Tracy 6905 and 6909, Open woods, Biloxi, Harrison County, July 20, 1900. (M.,NY.); Joor s.n., Long Beach, Harrison County, August 3 and September 15, 1891. (M.); Skehan s.n., Ocean Springs, Jackson County, August 6, 1895. (M.); Williams s.n., Leake County, August 23, 1892. (NY.); Joor s.n., Centerville, Wilkinson County, August 26, 1888. (M.); Tracy 6340, Horn Island, July 14, 1899. (NY.).

NORTH CAROLINA: Blomquist 3940, Southport, Brunswick County, August 11, 1930. (D.); L. F. & Fannie R. Randolph, Silverdale, Carteret County, July 19, 1922. (G.); Lewis 149, Sand banks near Beaufort, Carteret County, 1906. (NY.); Gray s.n., Beaufort, Carteret County, July 18, 1938. (D.); Rogers 3455, Beaufort, Carteret County, August 13, 1946. (D.); Rogers 3170 - 3171, Beaufort, Carteret County, July 25, 1946. (D.); Rogers 3389, Shackelford Banks, August 8, 1946. (D.); Rogers 3351, Harker's Island Road, Carteret County, August 5, 1946. (D.); Rogers 3200, Fort Macon, Shackelford Banks, Carteret



County, July 26, 1946. (D.); Hill 78, Pivers Island, Carteret County, July 1, 1941. (D.); Shallert 9400, Lake Waccamac, Columbus County, August 18, 1927. (D.); Beaver 481, Maysville, Jones County, August 12, 1935. (D.); Rogers 3464 and 3465, Oriental, Pamlico County, August 4, 1946. (D.); Curtis 1847. (M.).

SOUTH CAROLINA: Torbox s.n., Horry County, September 23, 1933. (NY.); Eggert s.n., Vanduse, Aiken County, August 6, 1898. (M.); Cuthbert s.n., St. Helen's Island, August 1884. (F.); Curtis 1898 (M.).

TEXAS: Houston, Harris County, April 1892. (M.); Evergreen, San Jacinto County, July 30, 1884. (M.); Hall 112, Woods, Hempstead, Waller County, June 15, 1872. (M., NY.); Bush 965, Columbia, October 1, 1901. (M.).

VIRGINIA: Churchill s.n., Ocean View, Cape Henry, Norfolk County. (M.).



P. 173.

T. CXLIII.

F. 170.



*Hedysarum trifoliatum scandens, folio longiore splendente.*

Plate XX. Galactia volubilis (L.) Britton.

Phototype.

From Dill. Elth. 173., pl. 43, f. 170. 1732.



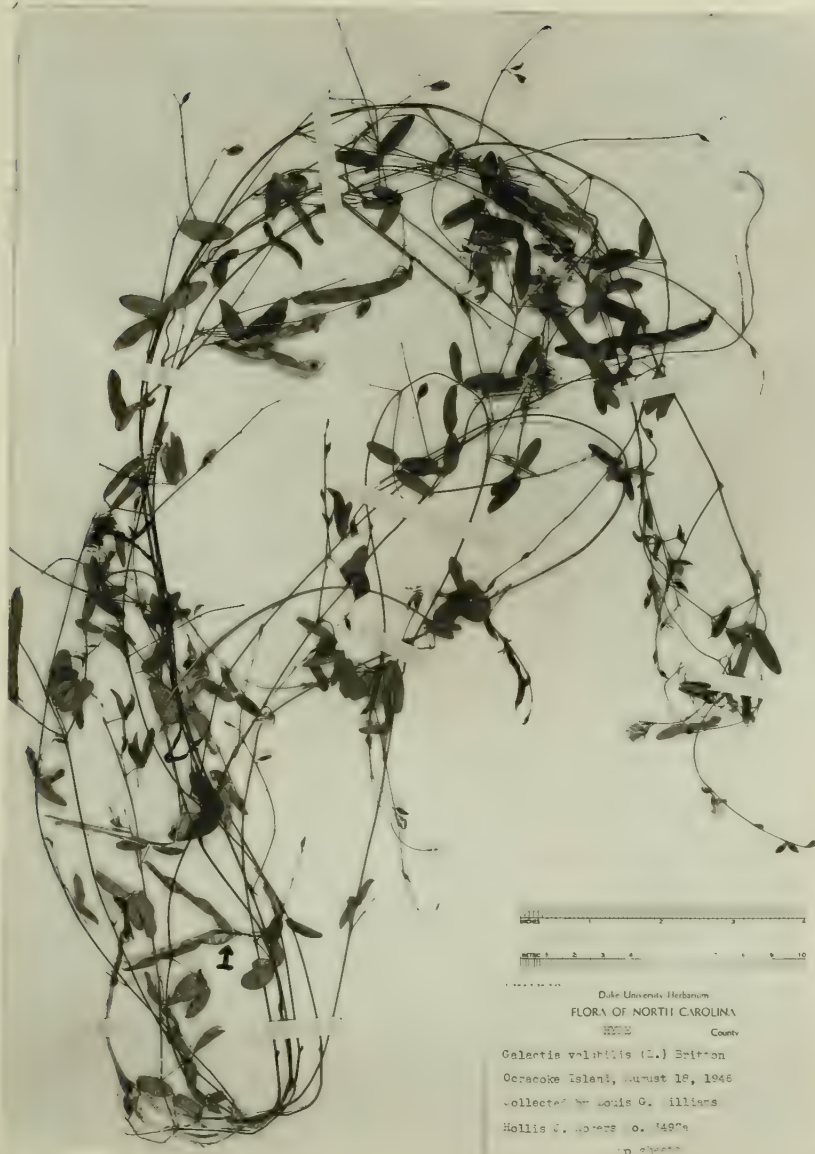


Plate XXI. Ocracoke Island specimen from which seeds were taken. Galactia volubilis (L.) Britton.



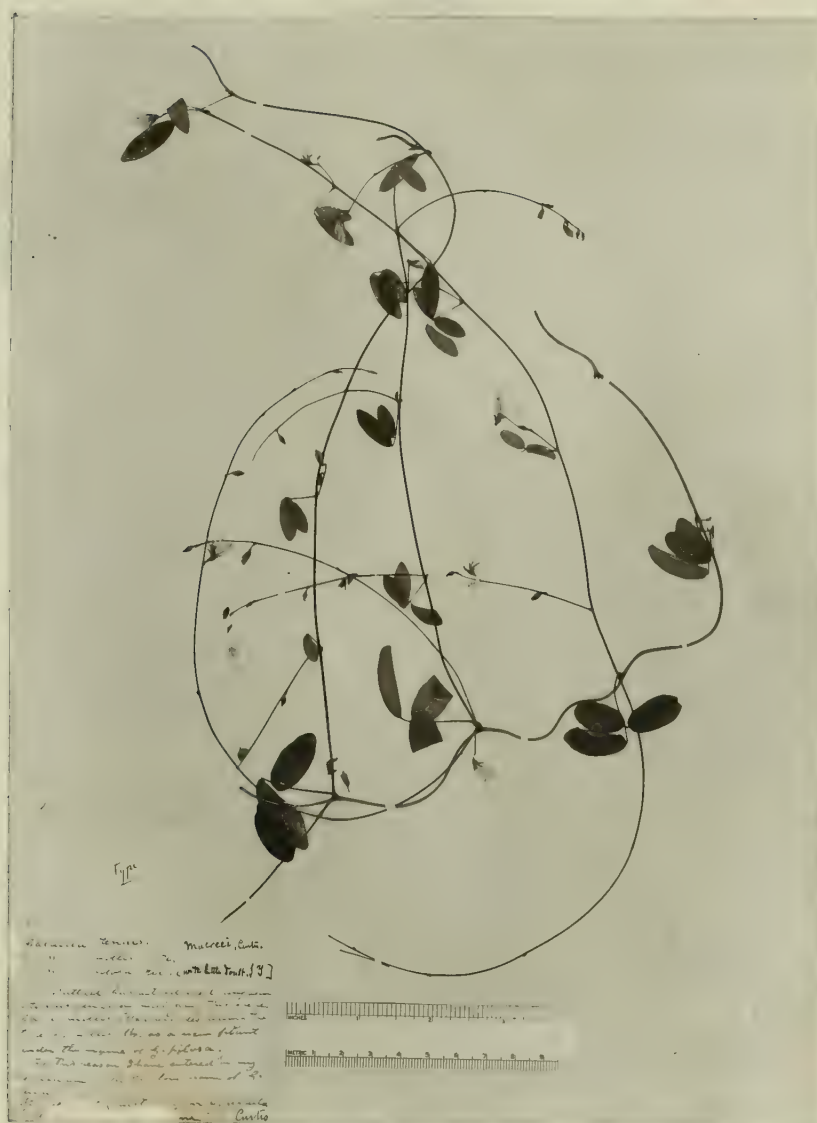


Plate XXII. Type specimen of Galactia Macreei M. A. Curtis.  
Galactia volubilis (L.) Britton.



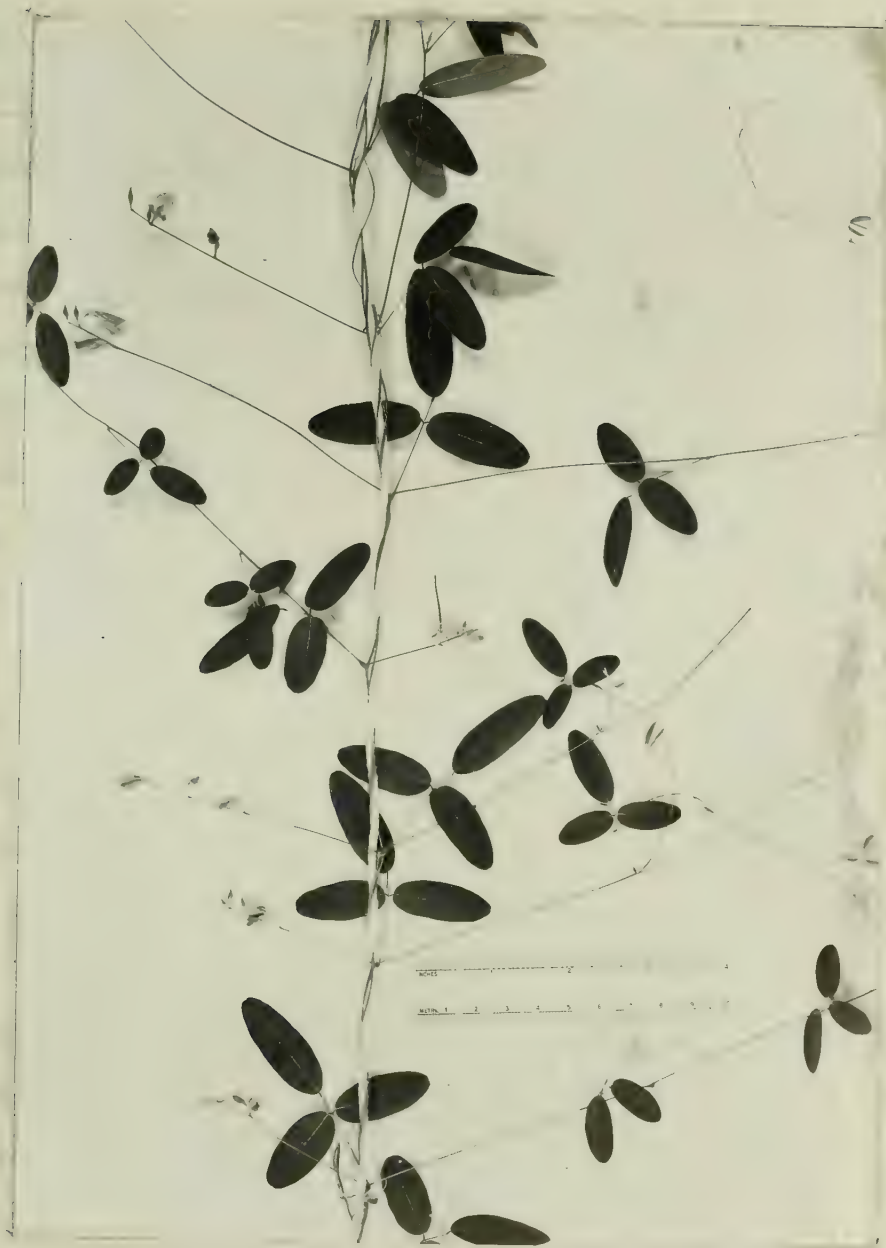


Plate XXIII. Photograph of living plant grown from seeds taken from plant in Plate XXI. Galactia volubilis (L.) Britton.



15. Galactia regularis (L.) B. S. P. Prel. Cat. N. Y. 14. 1888.

Synonymy:

Dolichos regularis L. Sp. Pl. 726. 1753.

Ervum volubile Walt. Flt. Car. 187. 1788.

Galactia glabella Michx. Fl. Bor. Am. 2: 62. 1803.

Galactia Purshii Desv. Ann. Sci. Nat. 9:413. 1826.

Type specimen: Dolichos regularis L. Virginia - Clayton Ex.

Herb. Gronovii. Herb. Musei. Britannica. London.

Plate XXIV, page 98.

Stem rather stout, seldom branched above the base, prostrate or procumbent, occasionally twining slightly; minutely retrorse pubescent, becoming glabrate in most instances: leaflets  $1\frac{1}{2}$  - 4 cm. long, rigid, elliptical-oblong to ovate-elliptic; minutely appressed pubescent below, glabrate above: root stout, elongate, often branched: peduncles and rachises rather stout, glabrate, many flowered throughout, usually about as long as the leaves, but often greatly exceeding them: flowers 12 - 16 mm. long; calyx 7 - 10 mm. long, glabrate or with a few minute hairs; corolla bright purple; standard pointed at the apex, tapered at the base: legume  $2\frac{1}{2}$  -  $4\frac{1}{2}$  cm. long; appressed pubescent, becoming glabrate.

Sand hills of the Coastal Plains, Fla. to La. and N. J. Map. Plate III, page 18.

The growth habits of this plant do not seem to be of much taxonomic value since specimens have been collected on which part of the season's growth showed the large broad leaves, and part had the narrow smaller leaves. Likewise, short erect



stems have been found growing from the same root which had long decumbent branches, and the tips of some of these were twining. The small, narrow-leaved form from Aiken, S. C., reported by Miss Vail, Bull. Torr. Bot. Club. 22: 500. 1895. is but an ecological variation of the species.

What appears to be an extremely pubescent form of G. regularis (L.) BSP. has been collected by A. Cuthbert at Braidentown, Manatee County, Florida. Five sheets, collected on April 12, 1917 and numbered 1542, and two sheets collected May 20, 1926 and numbered 1726 are in the Herbarium of the Agricultural Experiment Station, University of Florida. One sheet by A. S. Hitchcock, 71, July - August 1900, Marco, Lee County, Florida, seems to be of the same type.

ALABAMA: Bush 80, Spring Hill, Mobile County, August 3, 1897. (M.).

DELAWARE: Britton s.n., Georgetown, Sussex County, July 5 - 6, 1908. (NY.).

FLORIDA: West s.n., Gainesville, Alachua County, April 23, 1928. (F.); Watson s.n., Gainesville, Alachua County, September 15, 1944. (F.); West and Arnold s.n., Hampton, Bradford County, May 15, 1940. (F.); Curtiss 5727, Meritts Island, Indian River, Brevard County. (F.,G.,NY.); Curtiss 678, Indian River, Brevard County. (F.,G.,NY.); Crevasse s.n., Cocoa Beach, Brevard County, July 17, 1940. (F.); Rhoads s.n., Cocoa, Brevard County, September 25, 1936. (F.); Watson, Bratley and Murrill s.n., Doctor's Inlet, Clay County, May 12, 1939. (F.); Wilmot and West s.n., Cross City, Dixie County, May 13, 1941. (F.); Curtiss 4250, Jacksonville, Duval County, June 8, 1893. (M.); Curtiss 678,



Jacksonville, Duval County, June. (G.); Chapman Herbarium,  
 Gadsden County, 1835. (NY.); Chapman s.n., Quincy, Gadsden  
 County. (M.); DeVall and Arnold s.n., Trenton, Gilchrist County,  
 May 19, 1940. (F.); Small and West s.n., Sebring, Highlands  
 County, September 5, 1934. (F.); Crevasse s.n., Vero Beach,  
 Indian River County, July 18, 1940. (F.); West and Arnold s.n.,  
 Mayo, Lafayette County, May 20, 1941. (F.); Nash 1091, Eustis,  
 Lake County, June 1894. (G.,M.,NY.); Hitchcock 72, Myers, Lee  
 County, July - August 1900. (G.); Hitchcock s.n., Eustis, Lake  
 County, June - July 1894. (F.); Moldenke 951, Ft. Myers, Lee  
 County, April 12, 1930. (D.,M.,NC.); Rugg s.n., Estero, Lee  
 County, March 7, 1934. (F.); Tracy 7733 and 7783, Braidentown,  
 Manatee County, July 20, 1901. (M.); Cuthbert 1542, Braiden-  
 town, Manatee County, April 12, 1917. (F.); Cuthbert 1726,  
 Braidentown, Manatee County, May 20, 1926. (F.); Weber and West  
s.n., Reddick, Marion County, August 7, 1928. (F.); Hume s.n.,  
 Ocala National Forest, Marion County, September 3, 1935. (F.);  
O'Neill s.n., Ocala National Forest, September 12, 1929. (F.);  
West and Arnold s.n., Orange Springs, Marion County, May 27,  
 1941. (F.); West and Arnold s.n., Kent, Nassau County, June 3,  
 1942. (F.); Fredholm 5443, Orange County, July 31, 1902. (G.,  
 M.); Shallert, Winter Park, Orange County, August 10, 1946.  
 (F.); Walker s.n., Orlando, Orange County, October 1924. (F.);  
Murrill s.n., Orange County, May 6, 1941. (F.); O'Neill s.n.,  
 Bithlo, Orange County, June 17, 1929. (F.); West and Arnold  
s.n., East Palatka, Putnam County, June 7, 1940. (F.); DeVall  
s.n., Welaka, Putnam County, June 2, 1939. (F.); Degner 4958,



Venice, Sarasota County, August 12, 1933. (NY.); West and Arnold s.n., St. Augustine, St. John's County, June 7, 1940. (F.); West and Arnold s.n., Lauraville, Suwannee County, August 9, 1946. (F.); Murrill s.n., Daytona Beach, Volusia County, July 4, 1940. (F.); Robert and Lucian Hindery s.n., Crow's Bluff, Volusia County, June 29, 1941. (F.); Webber 476, Daytona Beach, Volusia County, August 11, 1896. (M.); Hood s.n., Blue Springs, August 27, 1911. (F.); Pierson 7355, May 3, 1926. (NY.); Curtiss s.n., Form A. J. Holmes Herbarium. (NC.).

GEORGIA: Harper 232, Chesser's Island, Okefinokee Swamp, Charlton County, June 1, 1930. (NY.); Harper 1450, Coffee County, July 26, 1902. (G.,M.); Tracy 3526, Albany, Dougherty County, August 20, 1897. (M.); Harper 937, Effingham County, June 22, 1901. (M.,NY.); Small s.n., Fort Barrington, McIntosh County, June 26, 1895. (NY.); Cuthbert s.n., August, Richmond County, August 14, 1907. (F.); Ruth s.n., Jessup, Wayne County, June 1893. (M.).

MARYLAND: Plitt 849, Robinson's Anne Arundel County, July 23, 1904. (G.); Hermann 9662, Bowie, Prince George's County, October 8, 1938. (G.,M.); Hermann 11545, Bowie, Prince George's County, July 13, 1945. (M.); Canby s.n., Salsbury, September 1865. (G.).

MISSISSIPPI: Tracy 4920, Beauvoir, September 19, 1898. (M.,NC.).

NEW JERSEY: Mackenzie s.n., Hammonton, Atlantic County, September 18, 1921. (D.,M.); Bassett s.n., Central Avenue, Hammonton, Atlantic County, July 1, 1922. (G.); Brinton s.n., Hammonton, Atlantic County, July 1890. (M.); Fogg 4626, Dry open



sand, Chatsworth, Burlington County, August 4, 1932. (G.); Long 52756, Mount, Burlington County, August 3, 1938; Britton s.n., Evansville, Burlington County, August 9, 1882. (NY.); Day s.n., Evansville, Burlington County, September 8, 1882. (NY.); Heritage and Britton s.n., Berkley, Gloucester County, 1887. (NY.); Mackenzie 4267, Toms River, Ocean County, August 8, 1909. (G.,M.); Buckley s.n., Pine Barrens. (M.); Herbarium Chapman s.n. (NY.).

NORTH CAROLINA: Godfrey 5411, Savannah at Chocowinity, Beaufort, Carteret County, July 20, 1938. (G.); Wells s.n., White Lake, Bladen County, August 26, 1927. (SC.); Rogers 3120, White Lake, Bladen County, July 10, 1946. (D.); Rodgers 199, Bladen County, July 18, 1940. (D.); Heller 14074, Elizabethtown, Bladen County, July 15, 1926. (M.); Rogers and Blomquist 3118, White Lake, Bladen County, July 10, 1946. (D.); Rogers and Blomquist 3119, White Lake, Bladen County, July 10, 1946. (D.); Rogers 3225, Atlantic, Carteret County, July 9, 1946. (D.); Rogers 3146, Newport, Carteret County, July 23, 1946. (D.); Rogers 3355, Harker's Island Road, Carteret County, August 5, 1946. (D.); Rogers 3338, East Beaufort, Carteret County, August 5, 1946. (D.); Godfrey 5681, Lillington, Harnett County, August 5, 1938. (D.); Wells s.n., Spout Springs, Harnett County, July 26, 1927. (SC.); Wells s.n., Spout Springs, Harnett County, June 15, 1927. (SC.); Wells s.n., Spout Springs, Harnett County, August 26, 1927. (SC.); Shallert s.n., Hoke County, July 4, 1940. (G.,M.); Fox 587, Lakeview, Moore County, July 25, 1947. (SC.); Wiegand and Manning 1664, Samarcand, Moore County, June



30, 1927. (G.); Wiegand and Manning 1665, Pine Bluff, Moore County, July 1, 1927. (G.); Ashe 2352, Moore County, July 1897. (NC.); Godfrey 5160, Rocky Mount, Nash County, July 18, 1938. (D.); Godfrey 4703, Cape Fear Peninsula, New Hanover County, June 23, 1938. (G.,SC.); Biltmore Herbarium 2456a, Wilmington, New Hanover County, July 2, 1897. (NY.); Oosting 33200, Pamlico County, July 10, 1933. (D.); Blomquist 11226, 15 miles southeast of Greenville, Pitt County, July 12, 1940. (D.); Wiegand and Manning 1670, Farmville, Pitt County, June 25, 1927. (G.); Mitchell s.n., Willard, Pender County, July 7, 1922. (SC.); Wells s.n., Burgaw, Pender County, June 30, 1945. (SC.); Rogers and Blomquist 3117, Clinton, Sampson County, July 10, 1946. (D.); Godfrey 4597, Laurinburg, Scotland County, June 11, 1938. (D.); Godfrey 4515, Clinton, Sampson County, June 11, 1938. (D.,G.); Godfrey 5041, Laurinburg, Scotland County, July 14, 1938. (D.,G.); Rogers 3101, Laurinburg, Scotland County, July 5, 1946. (D.); Rogers and Blomquist 3122, Between Mt. Olive and Seven Springs, Wayne County, July 10, 1946. (D.); Randolph 724, Wilson, Wilson County, July 7, 1922. (G.); Ashe 2352, Southeastern North Carolina. (M.,NY.).

SOUTH CAROLINA: Ravenel s.n., Aiken, Aiken County. (NY.); Rogers 3104, Darlington, Darlington County, July 5, 1946. (D.); Rogers 3102, Society Hill, Darlington County, July 5, 1946. (D.); Norton s.n., Hartsville, Darlington County, July 12, 1920. (NC.); Coker s.n., Hartsville, Darlington County, August 15, 1908. (NC.); Smith 673, Hartsville, Darlington County, August 3, 1940. (NC.); Smith 758, Hartsville, Darlington County, July 20,



1941. (NC.); Smith 750, Byrd Island, Darlington County, July 21, 1941. (NC.); Smith 753, Hartsville, Darlington County, July 22, 1941. (NC.); Smith 744, Witherspoon Island, Darlington County, July 21, 1941. (NC.); Norton s.n., Hartsville, Darlington County, July 16, 1920. (NC.); Coker s.n., Hartsville, Darlington County, July 5, 1909. (NC.); Norton s.n., Hartsville, Darlington County, July 8, 1920. (NC.); Rogers 3112a and b, Somerville, Dorchester County, July 6, 1946. (D.); Rogers 3105, Somerville, Dorchester County, July 5, 1946. (D.); Godfrey and Tryon 790, Georgetown County, July 21, 1939. (G.,M.,NY.); Rogers 3115, Georgetown, Georgetown County, July 7, 1946. (D.); House 2619, Keeshaw, Lancaster County, July 26, 1906.(NY.); Rhoades s.n., Columbia, Lexington County, August 1936. (G.); Godfrey and Tryon 823, Eutawville, Orangeburg County, July 24, 1939. (D.,G.,M.,NY.); Shallert 1650, Richland County, July 12, 1919. (D.); McCarthy s.n., Eastern South Carolina, July 1885. (NC.).

VIRGINIA: Fernald and Long 13370, Dry sandy woods near Raynor, Isle of Wight County, August 2, 1941. (G.); Fernald and Long 8745, south of Zuni, Isle of Wight County, July 20, 1938. (G.); Fernald and Long 12382, south of Lee's Mill, Isle of Wight County, July 11, 1940. (G.); Heller s.n., Suffolk, Nansemond County, July 24, 1893. (G.,M.); Fernald and Long 10306, South Quay, Nansemond County, June 23, 1939. (G.); Fernald and Long 10694, East of Cherry Grove, south of Quay, Nansemond County, July 27, 1949. (G.); Fernald and Long 3977, The Desert, Cape Henry, Princess Anne County, July 28 - 29, 1934. (G.); Fernald and Long 2823, back of Virginia Beach, Princess Anne County,



September 24, 1933. (G.); Fernald and Griscomb 2834, Dry pine barrens, Princess Anne County, September 23, 1923. (G.); Eggler 40-121, Cape Henry, Princess Anne County, July 20, 1940. (NY.); Curtiss s.n., Suffolk County, July 23, 1872. (M.); Seymour 91720.22, Waverly, Sussex County, July 20, 1891. (D.,G.,M.); Fernald and Long 8739, Wakefield, Sussex County, July 13, 1939. (G.); Fernald and Long 12693, Chub, Sussex County, August 22, 1940. (G.); Fernald and Long 8744, Franklin, Southampton County, July 19, 1938. (D.,G.,M.); Fernald and Long 7489, Franklin, Southampton County, September 7 - 8, 1937. (G.); Churchill 530, Ocean Park, August 5, 1927. (M.).





Plate XXIV. Galactia regularis (L.) B. S. P.

Type specimen.

Photographic negative provided by British Museum of Natural History.

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16. Galactia wrightii A. Gray, Pl. Wrightii 1: 44. 1852.

Synonymy:

Galactia tephrodes A. Gray, Pl. Wrightii 2: 34. 1853.

Galactia wrightii A. Gray var. mollissima Kearney and

Peebles, Jour. Wash. Aca. Sci. 29: 485. 1939.

Type specimen: Wright 111, Gray Herbarium, Harvard University,  
from Hills near Limpa, May to October 1849.

Plate XXV, page 102.

Stem fairly slender, several from the root or much branched near the base; suberect, prostrate, or twining; whitened or cinereous with closely appressed to soft villous pubescence, sometimes becoming glabrate: leaflets 1 - 6 cm. long, 5 mm. - 2 cm. wide, oblong to linear, pubescence resembling the stem, less canescent above than beneath: root woody, elongate, unbranched: peduncles and rachises slender, subsessile to 3 dm. long, the flowers evenly distributed throughout: flowers 10 - 15 mm. long; calyx 5 - 7 mm. long, densely pubescent; corolla purple; standard slightly shorter than the keeled petals, notched at the apex, auricled at the base: legume 3 - 5 cm. long, falcate, densely pubescent.

Western Texas, New Mexico, Arizona, and adjacent Mexico.

Map. Plate IV, page 19.

It is apparent that Asa Gray made the unfortunate mistake of describing this plant and giving it two names in different publications in rapid succession. This error may be explained by the fact that the material of Wright's No. 111 is atypical to some extent. A part of this type collection showing fire-



blackened stems and indicating that the region had been burned over during the previous season. This accumulation of ash and the reduction of competition may account for the more robust appearance of this material.

Galactia wrightii var. mollissima Kearney and Peebles is reduced to synonymy because no distinguishing characters, other than the spreading of the pubescence, have been found. One collection, Marcus E. Jones, Bowie, Cochsie County, Arizona, September 23, 1884. (NY.), has three sheets and shows all forms of integradation of this characteristic. The writer believes that this factor of length and spreading of the pubescence is merely an ecological variation and is not worthy of varietal distinction.

ARIZONA: Blumer 1797, Cochsie County, October 17, 1907. (US.); Blumer 1799, Paradise, Cochsie County, October 17, 1907. (M.,G.); Blumer 2107, Cochsie County, August 31, 1907. (US.); Blumer 2253, Cochsie County, September 29, 1907. (G.,US.); Eggleston 11039, Cochsie County, September 1914. (US.); Jones s.n., Bowie, Cochsie County, September 23, 1884. (NY.); Jones 4333, Bowie, Cochsie County, September 23, 1884. (US.); Wilcox 373, Cochsie County, August 1894. (US.); Blumer 2255, Paradise, Cochsie County, October 19, 1907. (G.); Kearney and Peebles, 14491, Maricopa County, October 6, 1939. (NY.,US.); Killip 32735, Maricopa County, October 6, 1939. (US.); Kearney and Peebles 14963, Pima County, August 31, 1940. (NY.); Darrow 83, Pima County, August 2, 1937. (IS.); Wooten s.n., near Tuscon, Pima County, September 27, 1934. (US.); Ferris 10055, Canyon near Continental, Pima County, July 14, 1940. (G.); Parker,



McClintock and Haskell 5901, Santa Catalina Mountains, Pima County, August 18, 1945. (G.); Peebles, Harrison and Kearney 2472, near Oracle, Pinal County, July 27, 1926. (US.); Jones 22498, Nogales, Santa Cruz County, September 23, 1926. (M.); Pringle 15851, Santa Rita Mountains, September 8, 1889. (G.,M.); Harris c. 16278, Santa Catalina Mountains, July 9, 1916. (NY.); Gooding 399, Palmerlee. (NY.); Darrow s.n., Chiricahua Mountains, July 4, 1937. (M.); Gooding 2372, Outlaw Canyon. (G.,M., NY.); Thornber 268, Santa Rita Mountains, July 13, 1903. (M., US.); Toumey s.n., Galluro Mountains, July 29, 1894. (G.,US.); Harris c. 16462, Santa Catalina Mountains, August 4, 1916. (US.); Jones s.n., Santa Rita Mountains, August 4, 1903. (US.); Peebles and Harrison 4743, Patagonia Mountains, August 28, 1927. (US.); Rothrock 487, Camp Bowie, August 1874. (G., US.); Griffiths 5956, 5997, 6086, Santa Rita Forests, September 10, 1903. (US.); Toumey 30, Cheruahuah Mountains, July 29, 1894. (G.); Davidson 337a, Metcalf, July 10, 1900. (G.); Lemmon 607, Apache Pass, September 1881. (G.); Lemmon 146 and 590, Pandora Ranch, Catalina Mountains, April 1881. (G.); Lemmon 595, Santa Catalina Mountains, 1881. (G.).

NEW MEXICO: Metcalf s.n., Magnus, Catron County, September 11, 1897. (US.); Jones s.n., Florita Mountains, September 7, 1903. (US.M.); Wright 956, Near Condes Camp, 1851. (G.,M.,NY.).

TEXAS: Sperry T. 268, Jeff Davis County, July 10, 1936. (US.); Wright 111, (Type), Hills near the Limpia, October 1849. (G.,NY.,US.); Howard s.n., Vieja Mountains, October 1883. (US.).





Plate XXV. Galactia wrightii A. Gray.

Co-type.



17. Galactia longifolia (Jacq.) Benth. Ann. Wien. Mus. 2: 127. 1838.

Synonymy:

Galega longifolia Jacq. Coll. 2: 349. 1788.

Tephrosia longifolia (Jacq.) Pers. Syn. 2: 328. 1807.

Sweetia longifolia (Jacq.) D. DC. Prod. 2: 381. 1825.

Galactia Sagoti Duchass and Walp. Linnaea 23: 739. 1850.

Galactia angustifolia Griseb. Kar. 56. 1857.

Galactia tenuiflora Wright and Arnold var. eriocarpa

Benth. Mart. Flor. Bras. XV. 1: 143. 1859.

Type specimen:

Mr. N. Y. Sandwith of Kew reported, in personal correspondence, August 26, 1947, that Urban found no authentic specimen of Jacquin's at Vienna, and that neither Kew nor the British Museum have any Jacquin type material, or any of the material cited by Bentham. It is proposed, therefore, that Duss 3641, Guadaloupe, 1894, being the principal exsicata cited by Urban, Symb. Antill. 2: 312-313. 1900., be considered as the lectotype for this species. Missouri Botanical Garden Herbarium, Gray Herbarium and New York Botanical Garden Herbarium. The specimen in the Missouri Botanical Garden Herbarium is arbitrarily selected as the lectotype.

Plate XXVI, page 105.

Stem extremely slender, elongate, branched, finely appressed pubescent, twining: leaves ternate, sessile to subsessile; leaflets oblong linear to linear, 3 - 10 cm. long,



.5 - 1.5 cm. wide, finely and closely pubescent: flowers evenly spaced on the rachis, pedicle very short; inflorescence to 10 cm. long; calyx 5 - 6 mm. long, the lobes gradually tapered; corolla purple; standard 8 - 10 mm. long, narrowly ovate, rounded at the apex, abruptly tapered at the base, not auricled; wings and keel petals obscurely spurred: legume 4 - 5 cm. long, 5 mm. wide, straight, closely pubescent, 8 - 10 seeded.

Texas and the Lesser Antilles. Map. Plate IV, page 19.

The presence of Galactia longifolia (Jacq.) Benth. in the United States was brought to light through the collection of Mr. S. G. Drushel of Edna, Texas, and his brother, the late Dr. J. A. Drushel of New York University. Mr. Drushel has found this plant at one location seven miles west and another four miles north of Edna, Texas, in black, waxy prairie land. One other specimen of this plant was found in the Gray Herbarium material, collected by Mr. Charles Wright in Texas, but having no number or date. This specimen must have been collected about 100 years prior the next known material, that of Mr. Drushel.

TEXAS: Drushel s.n., Horseshoe Lake, Jackson County, June 12, 1933. (NY.); Wright s.n., s.d. (G.).





Plate XVI. Galactia longifolia (Jacq.) Benth.



18. Galactia spiciformis T. & G. Fl. N. Am. 1: 287. 1838.

Type specimen: Rev. Alva Bennett, Key West, Monroe County,  
Florida. New York Botanical Garden Herbarium.

Plate XXVII, page 108.

Stem stout, twining and climbing on shrubs and trees, nearly glabrous to retrorse pubescent; leaves ternate, retrorse pubescent; leaflets 3 - 8 cm. long, 5 - 15 mm. wide, ovate-oblong to elliptic, rather acute at both ends; coriaceous: flowers distributed throughout the entire sessile rachis; calyx 6 - 7 mm. long, the upper and lower lobes greatly exceeding the lateral ones, strigose; corolla reddish purple; standard 8 - 10 mm. long, rounded at the apex, abruptly tapered at the base; keel petals and wings shortly and bluntly spurred: legume 4 - 5 cm. long, 7 - 8 mm. wide, slightly falcate, pubescent.

Hammocks and pinelands of Southern Florida. Map. Plate IV, page 19.

This coarse, high-climbing species closely resembles the apparently introduced species, G. striata (Jacq.) Urban, from which it can be separated by its thicker coriaceous leaves, and sessile, more closely flowered panicles. The two are easily confused.

FLORIDA: Garber s.n., Miami, Dade County, June 1897. (G.); Small 3868, Miami, Dade County, November 21, 1914. (NY.); Moldenke 5822, Homestead, Dade County, March 12, 1930. (NY.); Small and Carter 2549, Miami, Dade County, 1906. (NY.); Small and Carter 2562, Miami, Dade County, November 5, 1906. (NY.); Small and Carter 2554, Homestead, Dade County, November 10,



1906. (NY.); Britton 65, Miami, Dade County, March 19, 1904. (NY.); Small and Nash s.n., Coconut Grove, Dade County, 1901. (NY.); Small and Carter s.n., Miami, Dade County, 1903. (NY.); Moldenke 348, Pine Crest, Monroe County, January 5, 1930. (NY.); Small et al 3599, Ramshead Key, Monroe County, February 28, 1911. (NY.); Britton 538, Boot Key, April 1906. (NY.); Pollard, Collins and Morris 179, Largo Key, Monroe County, March 1898. (NY.); Pollard, Collins, Morris s.n., Boca Chica Key, March 18, 1898. (NY.); Small 3954, Boca Chica Key, November 27, 1912. (NY.); Britton 331, Soldiers' Key, Monroe County, March 30, 1904. (NY.); Chapman s.n., Key West, Monroe County, s.d. (NY.); Small et al. 3643, Little Pine Key, March 1, 1911. (NY.); Small and Carter 3045, Soldiers' Key, Monroe County, January 6, 1909. (NY.); Small and Small 4966, Key West, Monroe County, December 16, 1913. (F.); Small and Cuthbert s.n., Big Pine Key, Monroe County, May 9, 1919. (F.); Curtiss 674, Upper Metacomb Key, s.d. (F.,NY.); Taylor 51, Largo Key, Monroe County, December 12, 1927. (F.); Davis s.n., Key West, Monroe County, February 10, 1942. (F.); Curtiss 5642, Upper Metacomb Key, April 28, 1890. (F.,G.,NY.); Moldenke 810, Boca Chica Key, Monroe County, March 20, 1930. (D.,M.,NY.); Small and Small 5000, Boca Chica Key, Monroe County, December 2, 1913. (D.); Martin 1302, Big Pine Key, Monroe County, January 29, 1940. (D.); Small and Small 4980, Key West, Monroe County, December 16, 1913. (G.); Rugel 145c, Key West, Monroe County, February 1846. (G.); Tracy 7778, Mondongo Island, June 15, 1901. (NY.); Simpson s.n., Coximbox Island, December 15, 1891. (G.,NY.).





Plate XXVII. Galactia speciformis T. & G.

Type specimen.



19. Galactia striata (Jacq.) Urban, Symb. Antill. 2: 320. 1900.

Synonymy:

Glycine striata Jacq. Hort. Vindob. 1: 32. 1770.

Type specimen: Jacquin, Tropical America. 1770. Herbarium Vindob. fida Urban, Symb. Antill. 2: 330. 1900.

Stem stout, woody, twining and climbing on bushes, loosely fine pubescent: leaves ternate; leaflets broadly ovate to narrowly ovate, rounded at the base, mucronulate at the apex, exceedingly thin and membranous: inflorescence to 30 cm. long; peduncle about as long as the rachis; calyx 7 mm. long, densely pubescent; corolla maroon to purple; standard 7 - 9 mm. long, ovate, deeply notched; legume 4 - 5 cm. long, 8 - 10 mm. wide, 8 - 10 seeded.

Tropical America, including Mexico, Panama, Venezuela, and the West Indies, with one variety extending into Florida. Map. Plate IV, page 19.

Urban, Symb. Antill. 2: 320. 1900, considers G. striata (Jacq.) Urban to be an extremely variable species and records five varieties in addition to the type species.

Galactia striata (Jacq.) Urban var. cubensis (H.B.K.)

Urban. Symb. Antill. 2: 322. 1900.

Synonymy:

Galactia cubensis H. B. K. Nov. Gen. 4: 429. 1823.

Galactia pilosa Spreng. Syst. IV. 2: 283. 1827.

Galactia filiformis Griseb. Flor. 194. 1860.

Plate XXVIII, page 111.

An exceedingly high climbing woody vine with paper thin



leaves. The racemes are much longer than in G. specifformis T. & G., to which it is closely related, and the peduncle is about the length of the raceme. These two specimens from western Florida resemble very closely the two collections in the Missouri Botanical Garden Herbarium which were cited by Urban as belonging to this variety. They are C. Wright Number 1593, Eastern Cuba, September 1859 - January 1860. Missouri Botanical Garden Herbarium Number 18536, and A. S. Hitchcock, Kingston Streets, December 9, 1890, under herbarium number 216409.

FLORIDA: Buswell s.n., Ft. Myers, Lee County, July 1920. (NY.); Rugel 147, Manatee, Manatee County, August 1845. (NY.).

These two reports may represent introductions which may not have become established and are not now represented in the flora.



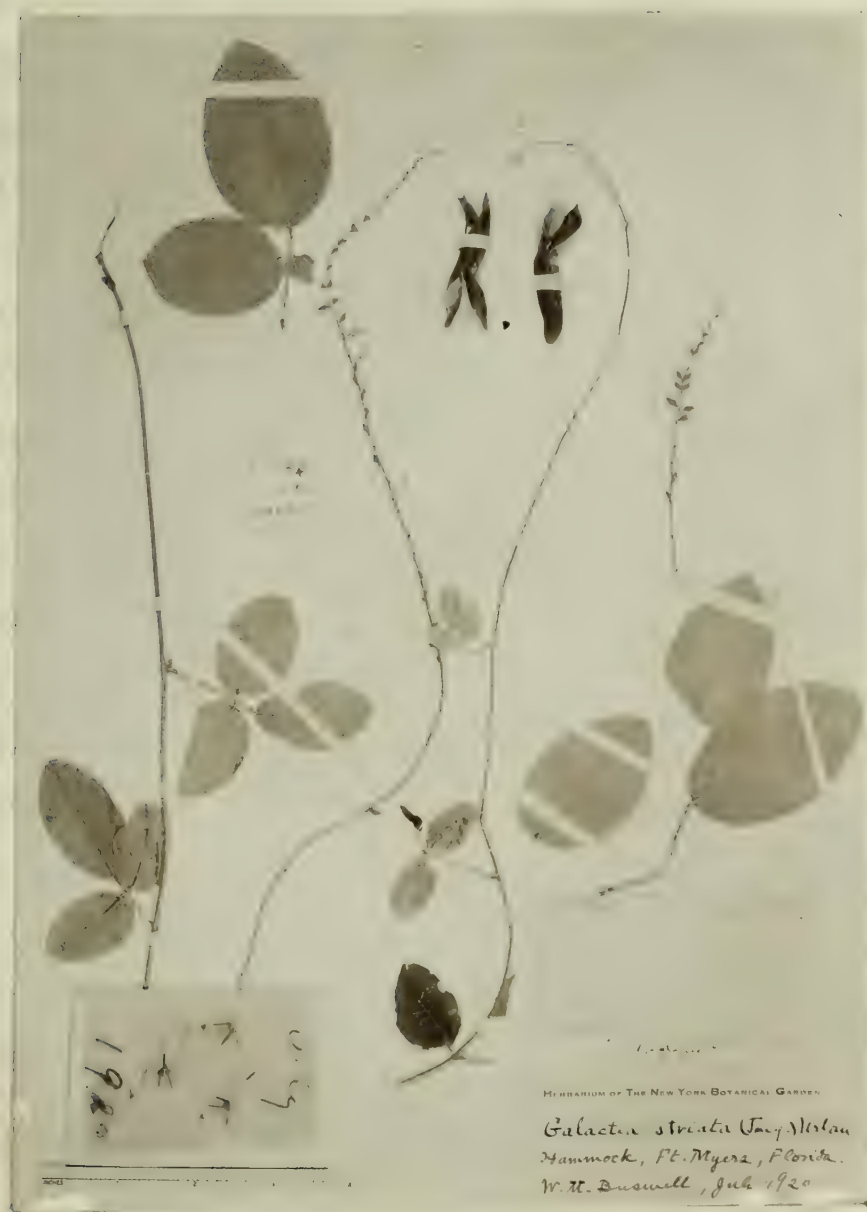


Plate XXVIII. Galactia striata (Jacq.) Urban var. cubensis  
 (H. B. K.) Urban.



20. Galactia elliotii Nutt. Gen. 2: 117. 1818.

Synonymy:

Galactia pinnata Muhl. Cat. 65. 1813. Not Persoon 1807.

Tephrosia elliotii Benth. Ann. Wien. Mus. 2: 127. 1838.

Type specimen: Since the S. Elliott Esq. South Carolina specimen upon which Nuttall based this species has not been located, the specimen by A. H. Curtiss 681, dry fertile soil near Jacksonville, Florida, is being proposed as a lectotype. New York Botanical Garden Herbarium.

Plate XXIX, page 116.

Stem stout, woody, twining and climbing on shrubs and trees, retrorsely hirsute to silky villous pubescent: leaves pinnately compound with 7 - 9 leaflets; leaflets 2 - 3 cm. long, elliptic, coriaceous, glabrous above, pubescent beneath: inflorescence 6 - 18 cm. long; peduncle exceeding the rachis; calyx 7 - 8 mm. long, appressed silky hirsute, the lobes unequal; corolla white, tinged with red; standard 11 - 13 mm. long, obovate, rounded at the apex, obscurely auricled at the base: legume 5 cm. long, 1 cm. wide, tomentose.

Coastal plain of Georgia and Florida. Map. Plate IV, page 19.

KEY TO THE VARIETIES OF GALACTIA ELLIOTTII

1. Plant glabrous to hirsute, robust.
  1. var. typica
2. Plant silky pubescent throughout, stems and leaves more slender.
  2. var. leavenworthii



20A. Galactia elliottii Nutt. var. typica n. var.

Range of the species:

FLORIDA: Rhoads s.n., Cocoa, Brevard County, July 2, 1936. (F.); Rhoads s.n., Cocoa, Brevard County, September 10, 1936. (F.); Palmer s.n., Indian River, Brevard County, 1874. (F.); Burger and Kelbert s.n., Inverness, Citrus County, July 9, 1927. (F.); Watson, Bratley and Murrill s.n., Doctors' Inlet, Clay County, May 12, 1937. (F.); Small, Mosier and DeWinkler 10935, Royal Palm Hammock, Collier County, April 29, 1923. (D.); Rolfs 12, Lake City, Columbia County, June 29, 1893. (F.,M.); Curtiss 4832, Jacksonville, Duval County, 1894. (M.); Curtiss 4249, Jacksonville, Duval County, May 27, 1893. (M.); Curtiss s.n., May 27, 1893. (NY.); Lighthipe 233, Jacksonville, Duval County, May 15, 1896. (NY.); Lighthipe 233, Pablo, Duval County, June 10, 1898. (M.); Curtiss s.n., Jacksonville, Duval County, 1896. (F.,M.,NY.); Tracy 7781, John's Pass, Escambia County, May 22, 1901. (M.,NY.); West and Arnold s.n., Andalusia, Fogler County, April 18, 1940. (F.); Porter s.n., Moffets, Hardee County, July 16, 1938. (F.); Shallert s.n., Hardee County, May 2, 1941. (NY.); Britton and Wilson 72, Tampa, Hillsboro County, August 25, 1903. (NY.); Churchill 530, (M.); Hitchcock s.n., Eustis, Lake County, 1894. (F.); Goff s.n., Leesburg, Lake County, May 25, 1937. (F.); Nash 403, Eustis, Lake County, 1894. (M.,NY.); Moldenke 925, Ft. Myers, Lee County, April 10, 1930. (D.); Hitchcock 68, Ft. Myers, Lee County, 1900. (M.,NY.); Standley 471, Lee County, 1917. (NY.); West s.n., Cedar Key, Levy County, May 17, 1936. (F.); Garber s.n., Manatee, Manatee County, April 1876. (NY.); Cuthbert s.n., Braidenton, Manatee

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County, June 15, 1919. (F.); Cuthbert s.n., Cortez, Manatee County, June 4, 1919. (F.); Rugel 159, Manatee, Manatee County, June 1845. (NY.); West and Arnold s.n., Orange Springs, Marion County, May 27, 1941. (F.); Knight s.n., Amelia City, Nassau County, May 16, 1939. (F.); Small and DeWinkler 9090, Okechobee County, May 1, 1919. (NY.); Ruth and Erdman West s.n., Ft. Drum, Okechobee County, April 22, 1946. (F.); Watson and Murrill s.n., Wilderness, Orange County, June 12, 1940. (F.); Lewton s.n., Lake Brantley, Orange County, June 21, 1894. (NY.); Ohlinger 90, Polk County, June 12, 1894. (F.,M.); West s.n., Keystone Heights, Putnam County, July 18, 1937. (F.); DeVall s.n., Welaka, Putnam County, June 16, 1939. (F.); Everhart s.n., Crescent City, Putnam County, 1880. (M.); Barnhart 2148, Johnson, Putnam County, 1897. (NY.); Reynolds s.n., St. Augustine, St. Johns County, 1875. (NY.); Small 8781, Ft. Pierce, St. Lucie County, May 10, 1918. (F.,NY.); West and Arnold s.n., Wildwood, Sumter County, April 4, 1946. (F.); J. G. C. s.n., New Smyrna, Volusia County, s.d. (NY.); Hood s.n., Orange City, Volusia County, August 24, 1911. (F.); Sias s.n., Harbor View, April 1897. (M.); Simpson 4902, 1889. (N.); Leavenworth s.n., East Florida (NY.); Chapman, East Florida, 1871. (N.).

GEORGIA: Harper 1559, Colesburg, Camden County, August 23, 1902. (M.,NY.); Jean Sherwood Harper 164, Chessie's Island, Okefinokee Swamp, Charlton County, May 29, 1930. (NY.).



20B. Galactia elliottii Nutt. var. leavenworthii Torr. & Gray.  
Fl. N. Am. 2: 687. 1841.

Type specimen: Dr. Leavenworth s.n., s.d., East Florida. New  
York Botanical Garden Herbarium.

Plate XXX, page 117.

The entire plant is more slender, the leaves narrow and  
thinner, and the plant silky pubescent throughout.

Florida, except northwestern part.

FLORIDA: Weber s.n., Gainesville, Alachua County, May 20,  
1933. (F.); Rolfs s.n., Lake Dora, Lake County, June 29, 1893.  
(F.); Murrill s.n., Lake County, March 2, 1939. (M.); Nash 923,  
Eustis, Lake County, June 1894. (M., NY.); Moldenke 925, Ft.  
Myers, Lee County, s.d. (NY.); Moldenke 734, Big Pine Island,  
Lee County, s.d. (NY.); Arnold s.n., Myakka, Manatee County,  
August 6, 1935. (F.); O'Neill s.n., Chuluota, Seminole County,  
June 19, 1929. (F.); Cravasse s.n., St. Augustine, St. John's  
County, August 8, 1940. (F.); Tracy s.n., Perico Island, May 6,  
1900. (M., NY.); Chapman s.n., East Florida, s.d. (M.); Leaven-  
worth s.n., East Florida, s.d. (NY.) Type.

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Plate XXIX. Galactia elliottii Nutt. var. typica H. J. Rogers.





Plate XXX. Galactia elliotii Nutt. var. leavenworthii T. & G.

Type specimen.



## SUMMARY

1. Twenty species and eight varieties of Galactia recorded for the United States.
2. One new name proposed: G. smallii.
3. One variety elevated to species: G. microphylla (Chapman).
4. One species reported from the United States for the first time: G. longifolia (Jacq.) Benth.
5. One species reduced to variety: G. floridana T. & G. var. brevipes (Small).
6. Three species reduced to synonymy: G. prostrata Small; G. grayii Vail; and G. heterophylla (Gill.) Vail.
7. Three new varieties proposed: G. floridana T. & G. var. typica; G. mollis Mich. var. typica; and G. elliottii Nutt. var. typica.
8. One variety reduced to synonymy: G. wrightii A. Gray var. mollissima Kearney and Peebles.



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## BIOGRAPHICAL SKETCH OF HOLLIS JETTON ROGERS

## Birth:

Place: Calloway County, Kentucky.

Date: October 7, 1911.

Mother: Mattie Jetton Rogers.

Father: James S. Rogers

## Colleges and Universities attended:

Murray State College. B. S. 1933

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Graduate Assistant in Botany at University of Kentucky.

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Graduate Assistant in Botany at Duke University. 1942.

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